100—39—101

Nikon FG-20

REPAIR MANUAL

修 理 指 針

NIPPON KOGAKU K.K.

Tokyo, Japan

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SPECIFICATIONS & MECHANISM

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SPECIFICATIONS

Type of camera: 35mm single-lens reflex

Usable film: 35mm film

Picture format: 24mm X 36mm

Standard lenses: AI-S Nikkor 50mm F1.2, 50mm F1.4, 50mm F1.8,
Series E 50mm F1.8

Lens for adjustments: AI 50mm F1.8 (20FL51)

Lens mount: Nikon bayonet mount

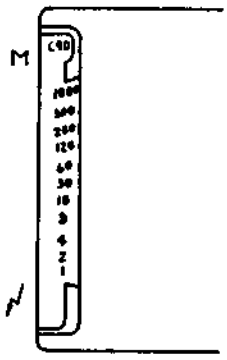
Maximum aperture index (AI): Provided

Shutter: Electronically-controlled vertical travel, metal focal plane shutter
SEIKO MFC-E271

Shutter speeds: Stepless speeds from 1 to 1/1000 sec. in automatic (A,) exposure mode; 11 sppeds from 1 to 1/1000 sec. in manual mode; mechanically controlled M90 (1/90 sec.) and B (bulb) settings available

Self-timer: Approx. 11 sec. delayed exposure; mechanical type; cancellable after setting

Viewfinder: Fixed eyelevel pentaprism type; 0.86X magnification with 50mm lens set at infinity; 92% frame coverage; -1 ± 0.5 dpt



Viewfinder display: Shutter speed scale, meter needle, manual mode indication LED (red M), ready-light LED (red)

Focusing screen: Nikon Type K clear-matte screen

Reflex mirror: Automatic instant-return type

Film-advance lever: Wound in single stroke or series of strokes with 144° winding angle, hinged type lever

Automatic film-advance: Possible with optionional Motor Drive MD-14 or MD-E

Exposure meter: TTL center-weighted full-aperture measurement system (ϕ12 approx. 40%) using one SPD

Audible warning: Available when shutter speed dial is set at ; "beep-beep" sound activated as soon as shutter release button is depressed halfway when shutter speed is around 1/30 sec. or lower or around 1/1000 sec. or higher

Metering range: EV1 to EV18 at ASA/ISO 100 with 50mm F1.4 lens

Film speed range: ASA/ISO 25 to 3200

Exposure compensation: +2±0.4EV exposure compensation possible by depressing the exposure compensation button

Power switch: Power switch tuned on when shutter release button is depressed halfway; stays on for approx. 20 sec. after finger is removed from button; is turned off when shutter speed dial is set to M90 or B

Battery check: By comfirming if power switch is on by depressing shutter release button halfway

Battery voltage	Power switch
More than 2.5V	Remains on for 15 - 35 sec.
2.5 - 2.38V	Remains on momentaly
less than 2.38V	Fails to turn on

Power source: Two 1.55V silver-oxide batteries (SR44) or one 3V lithium battery (CR-1/3N) or two 1.5V alkaline-manganese batteries (LR44)

Battery consumption: Metering

Auto: Approx. 3mA

Manual: Approx. 4.5mA

Shutter releasing: Approx. 13mA

Frame counter: Additive type, self-resetting; for blank exposure before frame 1, shutter fires at 1/90 sec. on auto or at any shutter speed dial setting on manual

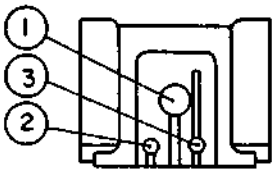
Film rewind: Via folding crank and rewind button

Sync contact: X contact only, speed of 1/90 sec. or slower

Synchronization: With electronic flash; with Nikon dedicated flash unit, flash sync automatically set to 1/90 sec. when camera is set at either automatic exposure mode or when shutter speed dial is set at 1/125 or higher in manual mode; at slower speeds on manual, shutter fires at speed set

Ready-light: Viewfinder thunder bolt mark " " lights up when Nikon dedicated speedlight unit is completely recycled, ready-light blinks when the aperture setting is incorrect (SB-E, EM mode only)

Accessory shoe:



①: Sync contact

②: Ready-light contact

③: Contact for the SB-19 and SB-E

Camera back: Pops open when film rewind knob is pulled up; memo holder provided

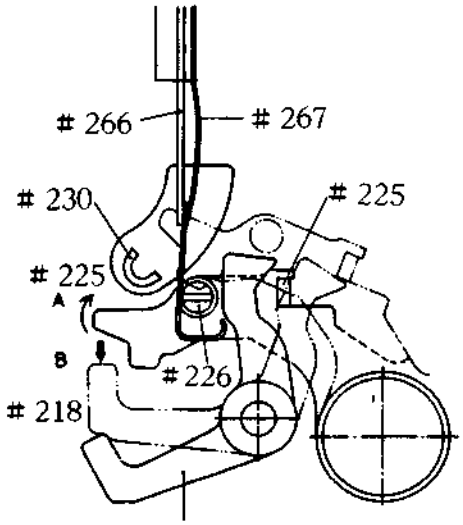
Eyepiece: Eyepiece correction lenses, rubber eyecup attachable, Magnifier DG-2 attachable by using eyepiece adapter

Dimensions: 136mm (W) X 88mm (H) X 54mm (D)

Weight: Approx. 440g (body only)

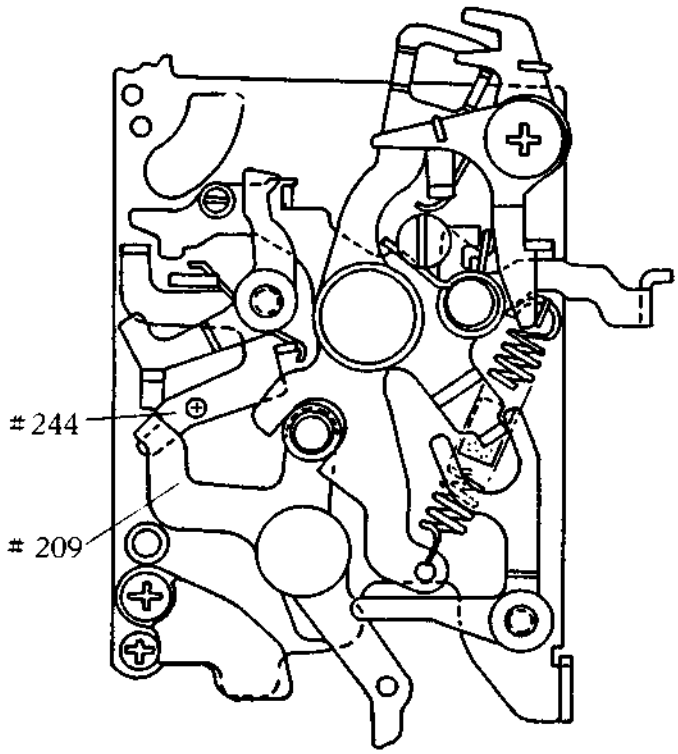
[2] MECHANISM

Mirror bound stop mechanism



Turning Mirror-up lever #225 to Direction A executes mirror rising.
At mirror rising, Mirror switch blade B #267 is unlatched from Mirror switch pin #226 and turns Bound stopper lever #218 clockwise.
Thus Bound stopper lever #218 is latched with the bend of #225 as soon as the mirror rising is completed to stop mirror bound.
The clearance between #218 and the bend of #225 is controlled by adjusting the bend of #225 to regulate the mirror bound.

The latch of #218 with #225 is unlatched by the closing curtain signal (second release).
The closing curtain signal is inputted into #218 from Direction B and #218 is turned counterclockwise to release the latch.
At the moment, Mirror down hook #244 is also turned counterclockwise to make #225 go down. However, the latch release of #218 with #225 is prior to that of #209 with #244 to execute the mirror down smoothly.



DISASSEMBLING & ASSEMBLING & ADJUSTMENTS & EXPLOSION DRAWINGS

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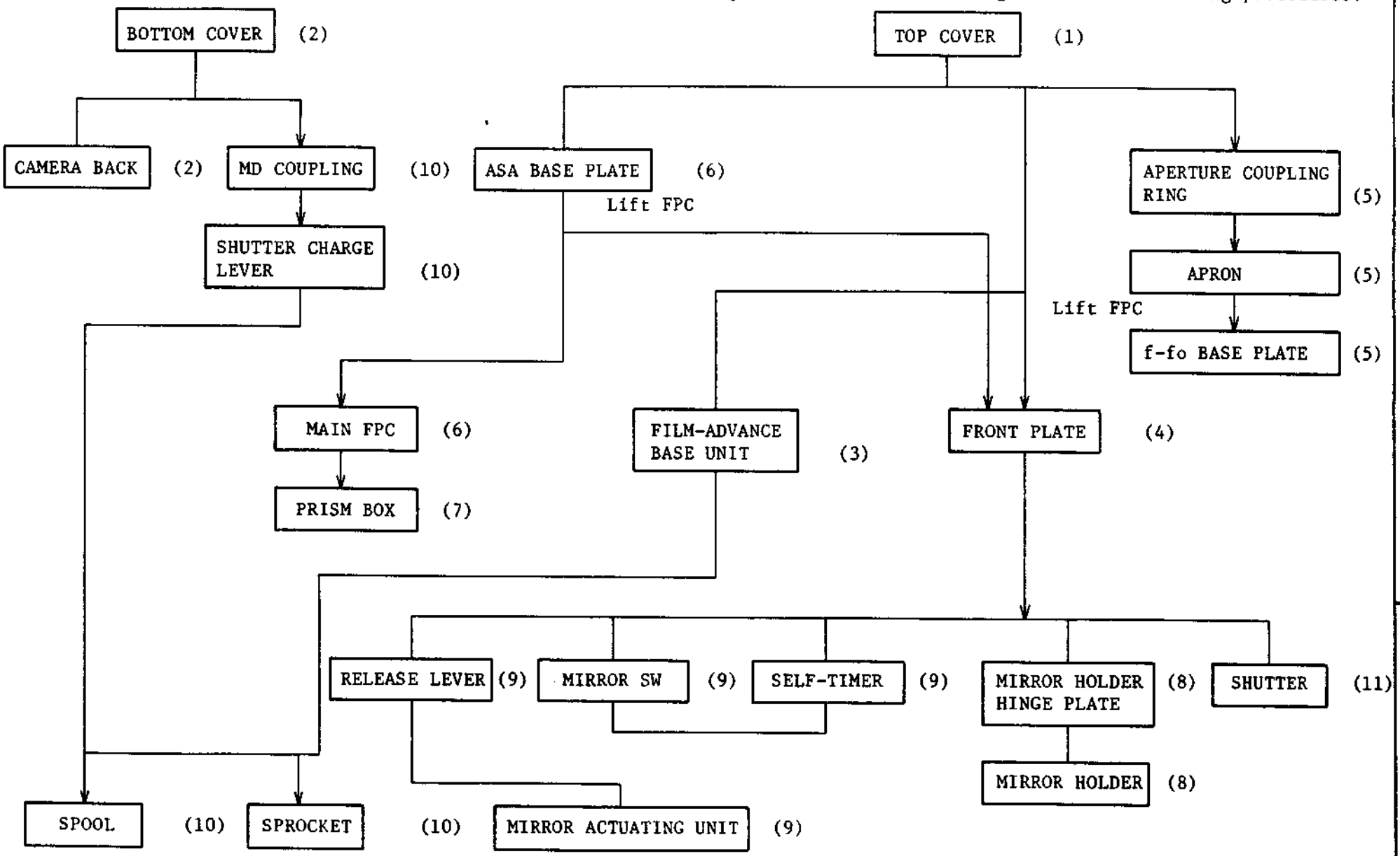
[1] DISASSEMBLING

1. DISASSEMBLING OUTLINE

Note: 1) Numbers in parentheses refer to disassembling procedures.
2) Figure numbers refer to figures in reassembling procedures.



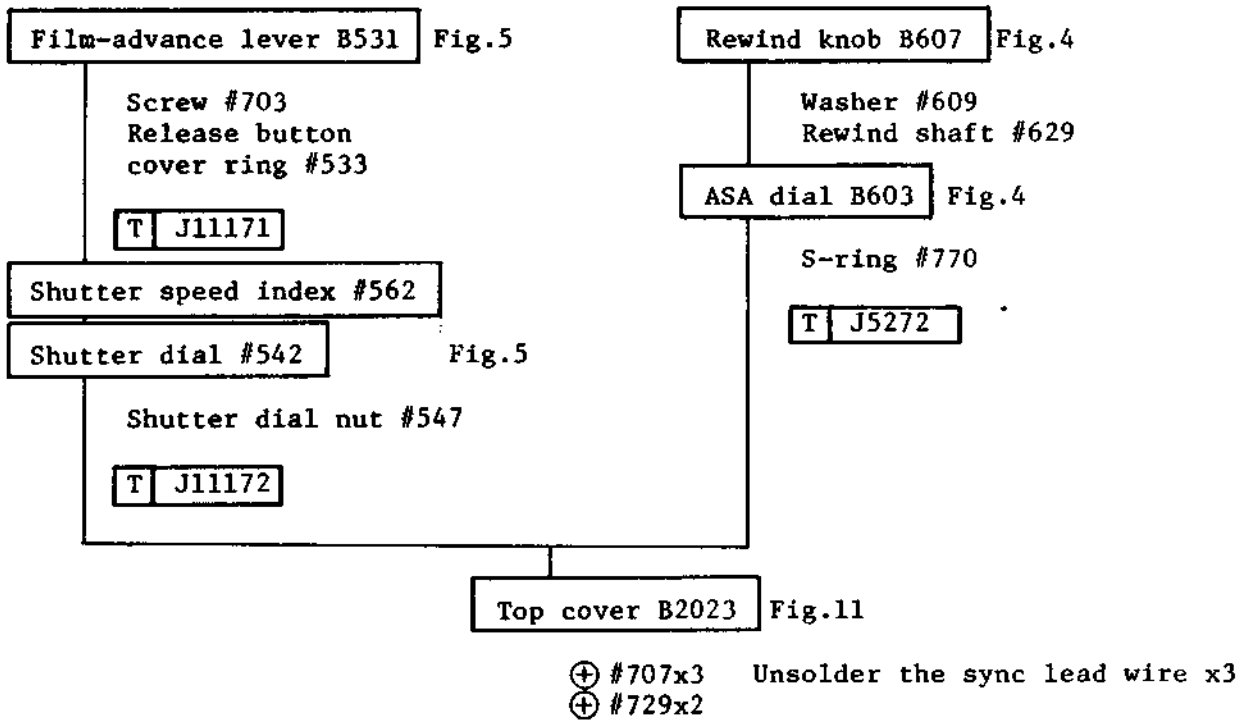
2. DISASSEMBLING PROCEDURE

Note: 1) Disassembling should be started after batteries are removed.

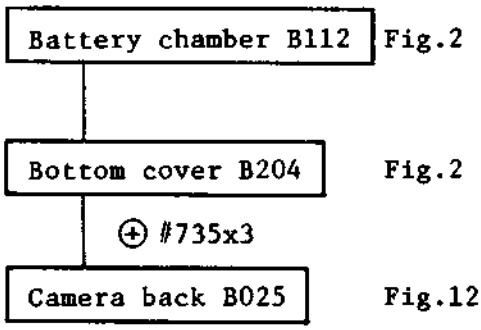
2) Figure numbers refer to figures in reassembling procedure.

3) Be sure to learn how the lead wires are arranged.

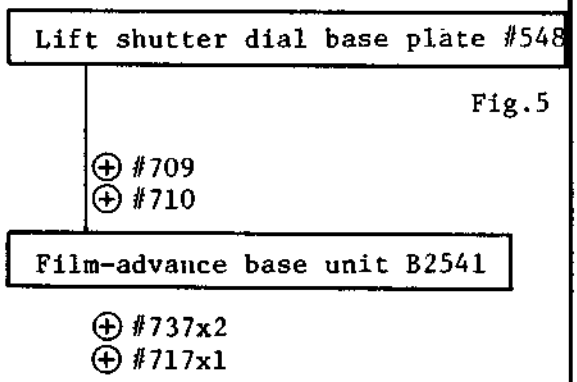
(1) Top cover



(2) Bottom cover



(3) Film-advance base unit



(4) Front plate

Top cover

ASA brush B687 Fig.4

Exposure compensation switch contact B620 Fig.4

⊕ #616

Lift ASA base plate Fig.4

⊕ #733

Unsolder lead wires from the main FPC Wiring diagram

Frame counter sw lead wire #1056 (white)
Battery contact lead wire #1048 (black)
Shutter Mg ⊖ lead wire #1052 (yellow)
Shutter Mg ⊕ lead wire #1051 (red)
Trigger sw lead wire #1054 (blue)
Power sw lead wire #1053 (white)

Unsolder lead wires from the shutter dial base plate Wiring diagram

Battery chamber lead wire #1047 (red)

Shutter dial case plate B548 Fig.5

Lift B548 with remaining the main FPC attached.

⊕ #709
⊕ #710

Peel off Tape #388 Fig.5

(A)

(5) Aperture coupling ring, apron

Bayonet ring #350 Fig.9

⊕ #747x4
Bayonet spring #351

Aperture coupling ring B369 Fig.9

⊕ #729x1
Lift Apron #22.

Apron #22

Front plate cover #21 Fig.9

Lens release button #352

Unsolder lead wires from the f-fo base plate Wiring diagram

Lead wires #1066 (pink), #1067 (purple)

f-fo base plate B1006 Fig.9

⊕ #732x2

(A)

Leatherettes #106 and #107 Fig.13

Front plate screws Fig.10

⊕ #733x4

Prism box screws (Eyepiece side) Fig.10

⊕ #733x4

Front plate B026

(6) Main FPC (shutter dial base plate)

Top cover

ASA brush B637 — Fig.4

Exposure compensation switch contact B620 — Fig.4

⊕ #616

Lift the ASA base plate — Fig.4

⊕ #733

Unsolder Frame counter switch lead wire #1056 (white) from top cover — Wiring diagram

Shutter dial brush gear B561 — Fig.5

G-ring #774

T J5272

Lift Shutter dial printed circuit

⊕ #709, + #727

Shutter dial base plate B548

⊕ #710

Unsolder lead wires from the main FPC — Wiring diagram

fo base plate lead wires
#1064 (orange), #1062 (blown)
#1065 (grey)
f-fo base plate lead wire
#1066 (pink)
Battery contact lead wire
#1048 (black)
Mirror switch lead wire
#1061 (purple)
M mode indication LED
lead wires (red), green)
Meter lead wires (black),
(yellow)
Ready-light LED lead wires
(pink), (grey)
Power sw lead wire #1053 (white)
Trigger sw lead wire
#1054 (blue)
Shutter Mg ⊕ lead wire
#1051 (red)
Shutter Mg ⊖ lead wire
#1052 (yellow)
Buzzer lead wire (red)

(B)

(B)

Unsolder lead wires from the shutter dial base plate — Wiring diagram

Buzzer lead wire (yellow)
Battery chamber lead wire
#1047 (red)
Frame counter switch lead
wire #1056 (white)

Unsolder lead wire from the ASA base plate

f-fo base plate lead wire
#1067 (purple)

Lift the shutter dial printed circuit — Fig.5

⊕ #709, ⊕ #727

SPD holdoer #179 — Fig.10

⊕ #749

Peel off Tape #388 — Fig.10

Eyepiece mold B381 — Fig.10

⊕ #724x2

(C)

C

Prism box B379 Fig.10

⊕ #734x2
⊕ #732x2
Disassemble the main FPC with the prism

Main FPC B1001 Fig.10

Prism retaining spring A #371
Prism reatining spring B #373

(7) Prism box

Prism retaining sheet #370 Fig.10

Pentagonal prism G3 Fig.10

Finder field frame #376 Fig.10

Prism box B379 Fig.10

Meter is also disassembled.

(8) Mirror holder

Tape #388 Fig.6

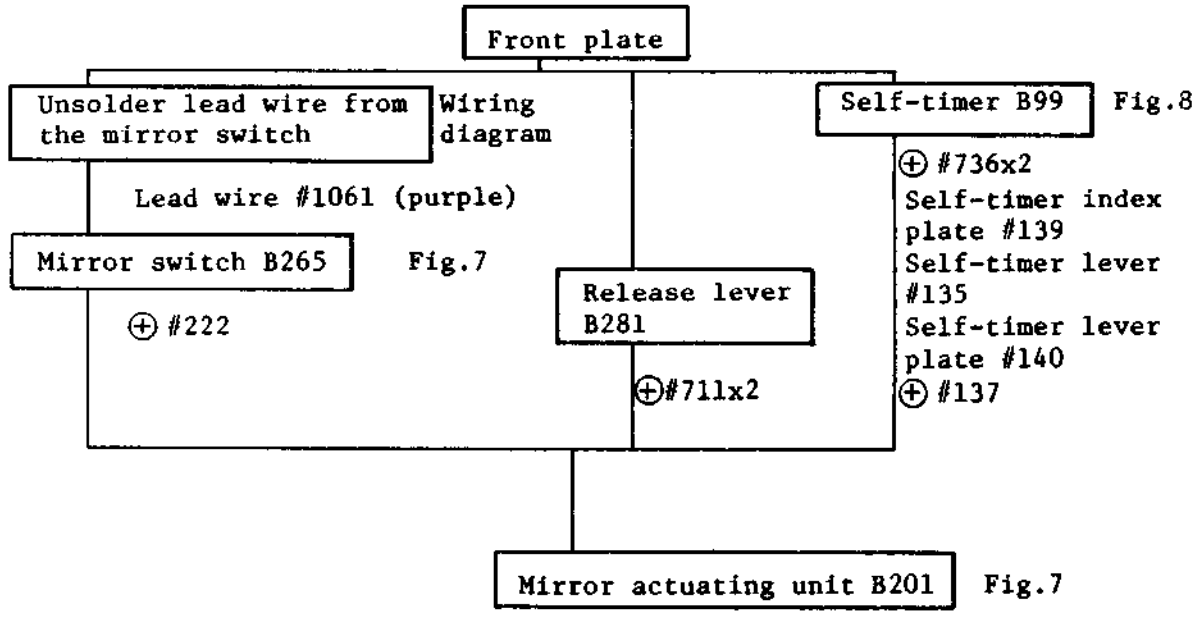
Mirror holder hinge plate B388 Fig.6

⊕ #750, ⊕ #760

Mirror holder B290 Fig.8

Washer #760
Mirror holder spring #296

(9) Mirror actuating unit



(10) Spool, sprocket

Film-advance base unit

Unsolder lead wire from the MD switch — Wiring diagram

Lead wire #1049 (yellow)

MD swicth B443 — Fig.2

⊕ #748

Motor coupling B418 — Fig.1

⊕ #419

T | J15162

Charge lever B405 — Fig.2

⊕ #410, ⊕ #406

Spool shaft B464 — Fig.1

Spool #465 — Fig.1

Sprocket screw #411 — Fig.1

Rewind button #412 — Fig.1

Sprocket spring #416

Sprocket shaft B469 — Fig.1

Sprocket #466 — Fig.1

Washers #413, #414

(11) Shutter

Tape #388 — Fig.3

Unsolder lead wires form the shutter dial base plate — Wiring diagram

Shutter Mg ⊖ lead wire #1052 (yellow)
Shutter Mg ⊕ lead wire #1051 (red)
Trigger switch lead wire #1054 (blue)
Power switch lead wire " #1053 (white)
Sync lead wire #1055 (white)
MD switch lead wire (1049 (yellow)
MD contact base plate lead wire #1050 (orange)

Release lever B522 — Fig.3

Release button switch B424
⊕ #723, ⊕ #526x2

D

D

Battery chamber B111 — Fig.3

⊕ #734x2

Shutter B100 — Fig.3

⊕ #713x2
⊕ #714x1

1. スプール・スプロケット SPOOL & SPOROKET

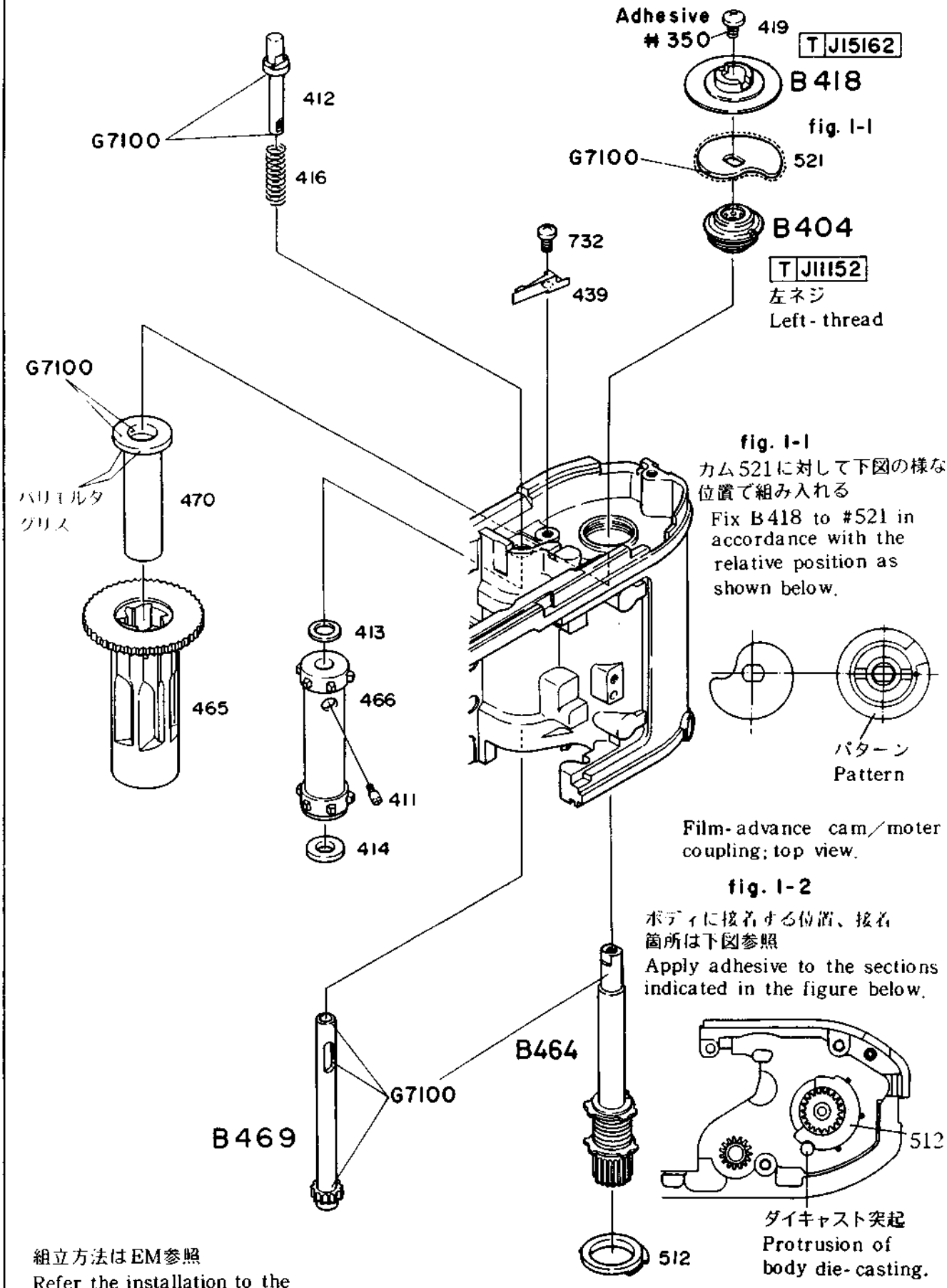


fig. 1-1

カム521に対して下図の様な位置で組み入れる

Fix B418 to #521 in accordance with the relative position as shown below.

Film-advance cam/moter coupling; top view.

fig. 1-2

ボディに接着する位置、接着箇所は下図参照

Apply adhesive to the sections indicated in the figure below.

組立方法はEM参照

Refer the installation to the pertaining section of repair manual for the Nikon EM.

Fig. 1

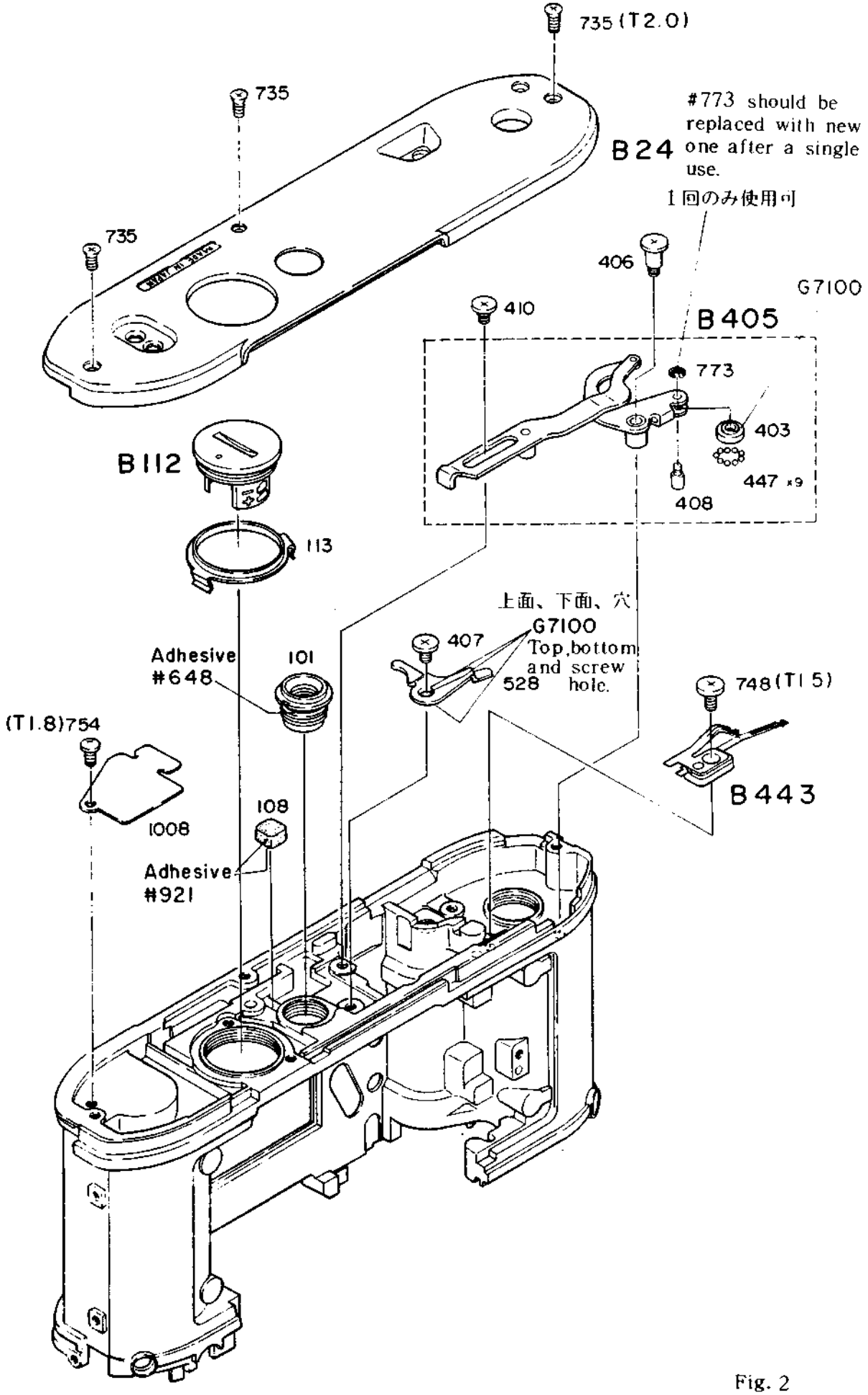

735 (T2.0)
735
735
B24
#773 should be replaced with new one after a single use.
1回のみ使用可
406
G7100
410
B405
773
403
447 ×9
408
B112
113
上面、下面、穴
G7100
Top,bottom and screw hole.
407
528
Adhesive #648
101
748 (T1.5)
(T1.8)754
B443
108
1008
Adhesive #921

Fig. 2

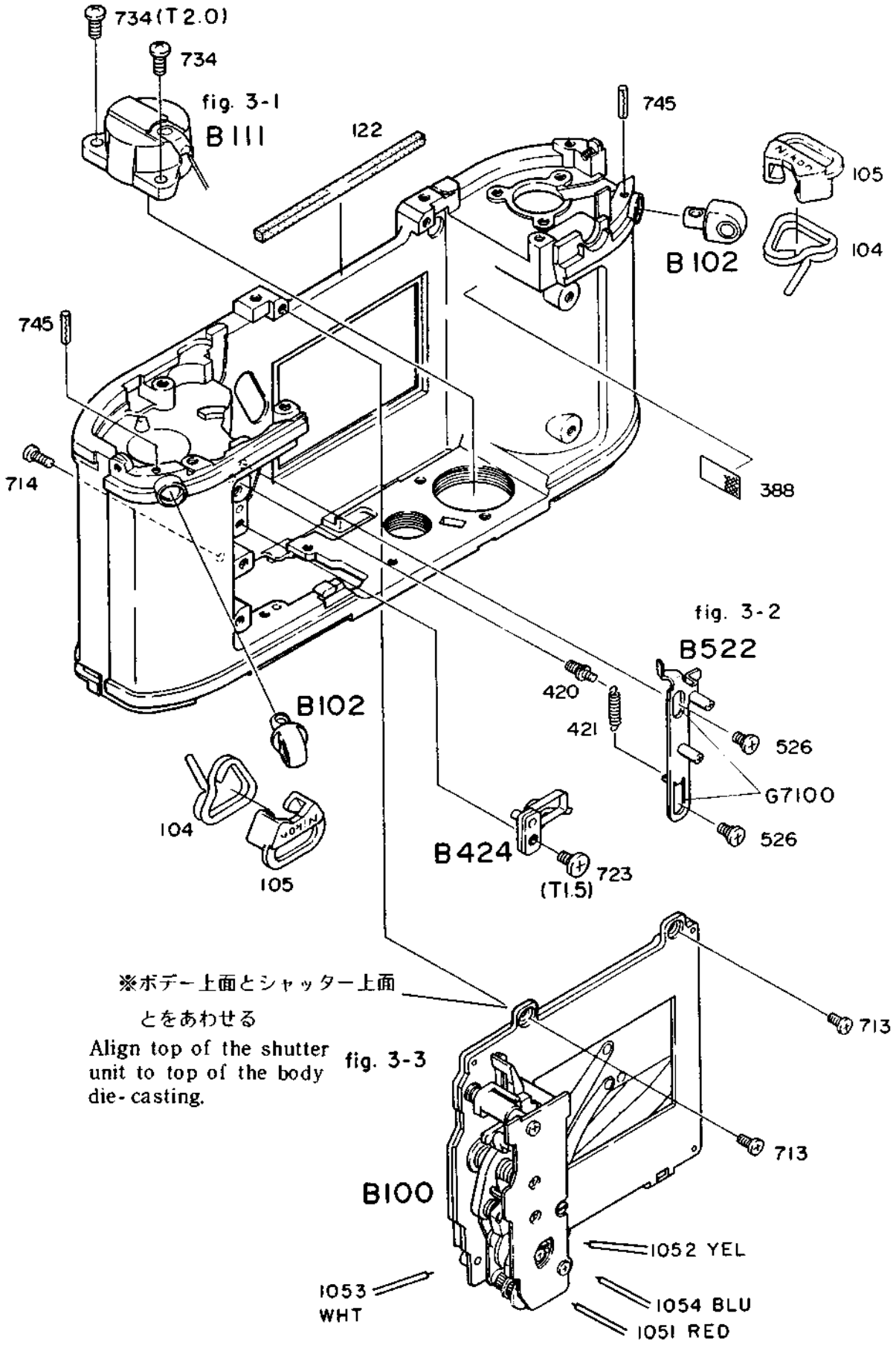

734(T2.0)
734
fig. 3-1
B111
122
745
105
104
B102
745
714
388
fig. 3-2
B522
420
421
526
G7100
526
B102
104
105
B424
723
(T1.5)
※ボデー上面とシャッター上面
とをあわせる
Align top of the shutter unit to top of the body die-casting.
fig. 3-3
713
713
B100
1052 YEL
1053 WHT
1054 BLU
1051 RED

Fig. 3

Fig.3-1 Route of battery chamber lead wires

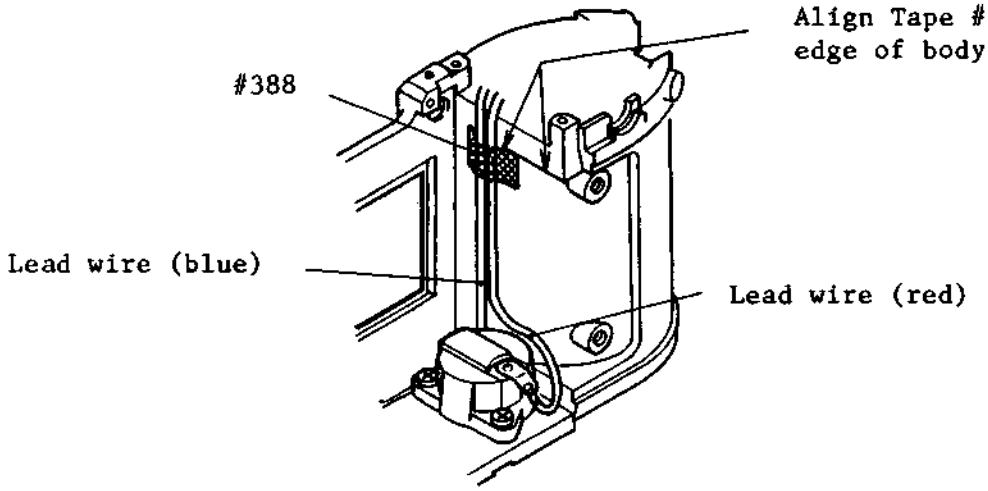
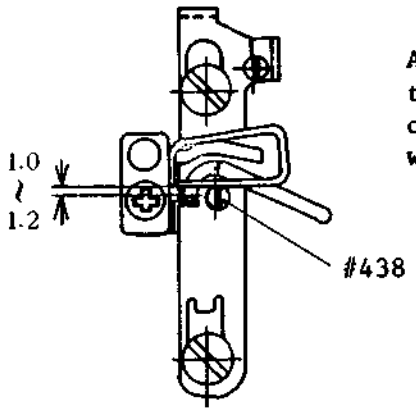
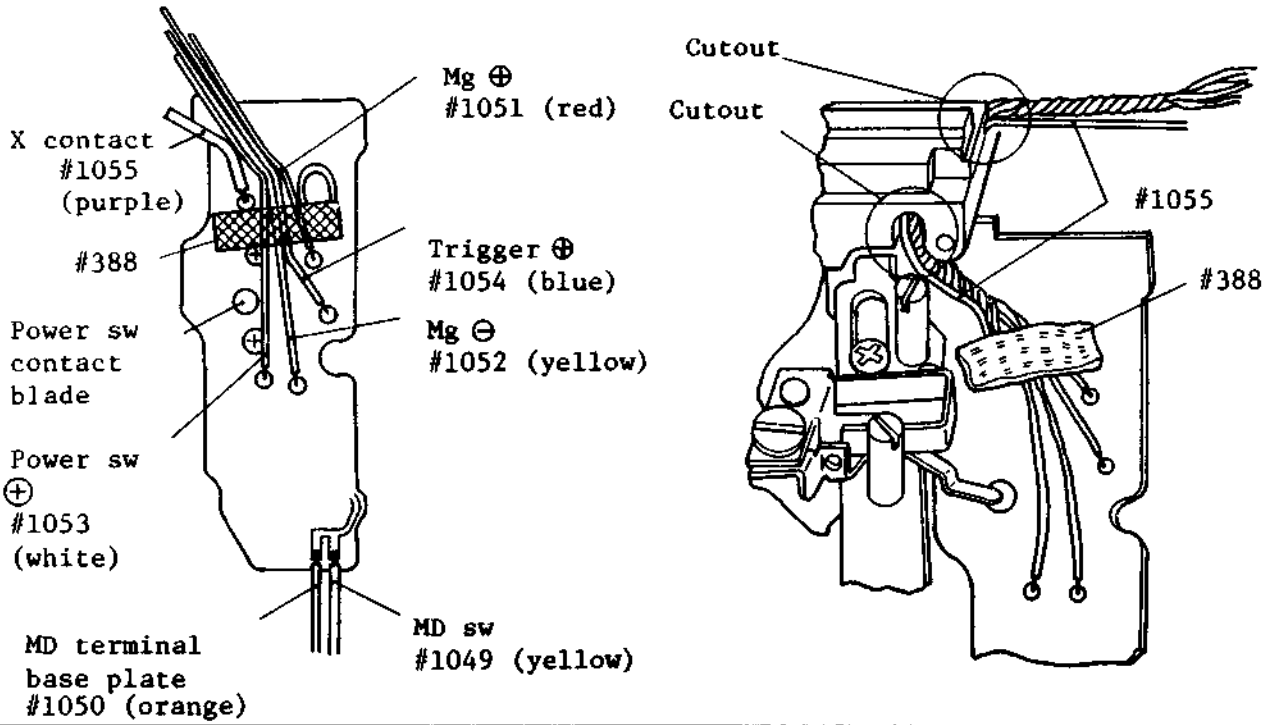


Fig.3-2 Power switch contact positioning



Adjust Release pin #438 so that the clearance of power switch contact should be 1.0 - 1.2mm while the slide lever is free.

Fig.3-3 Soldering and route of shutter shutter base plate lead wires



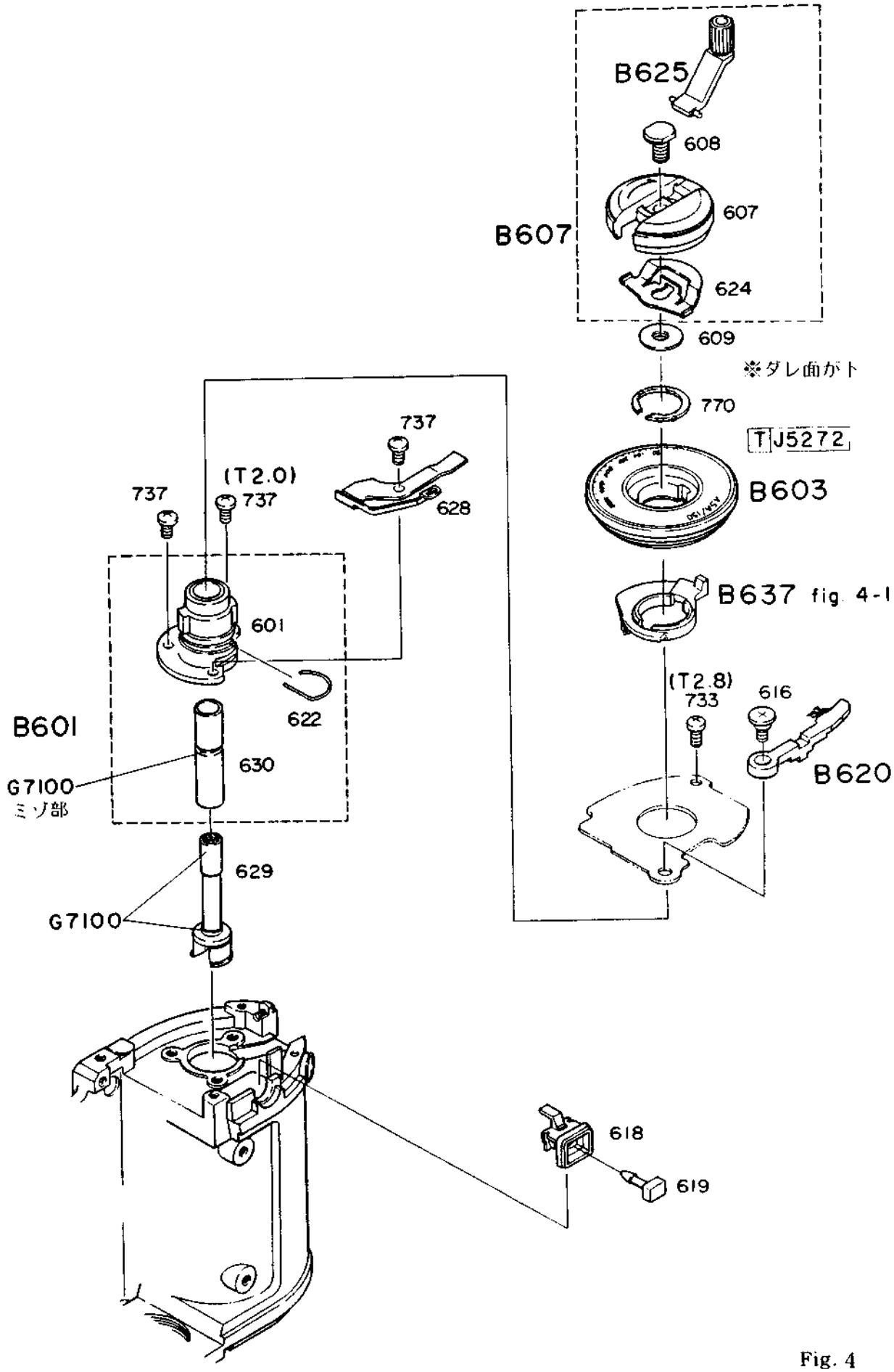
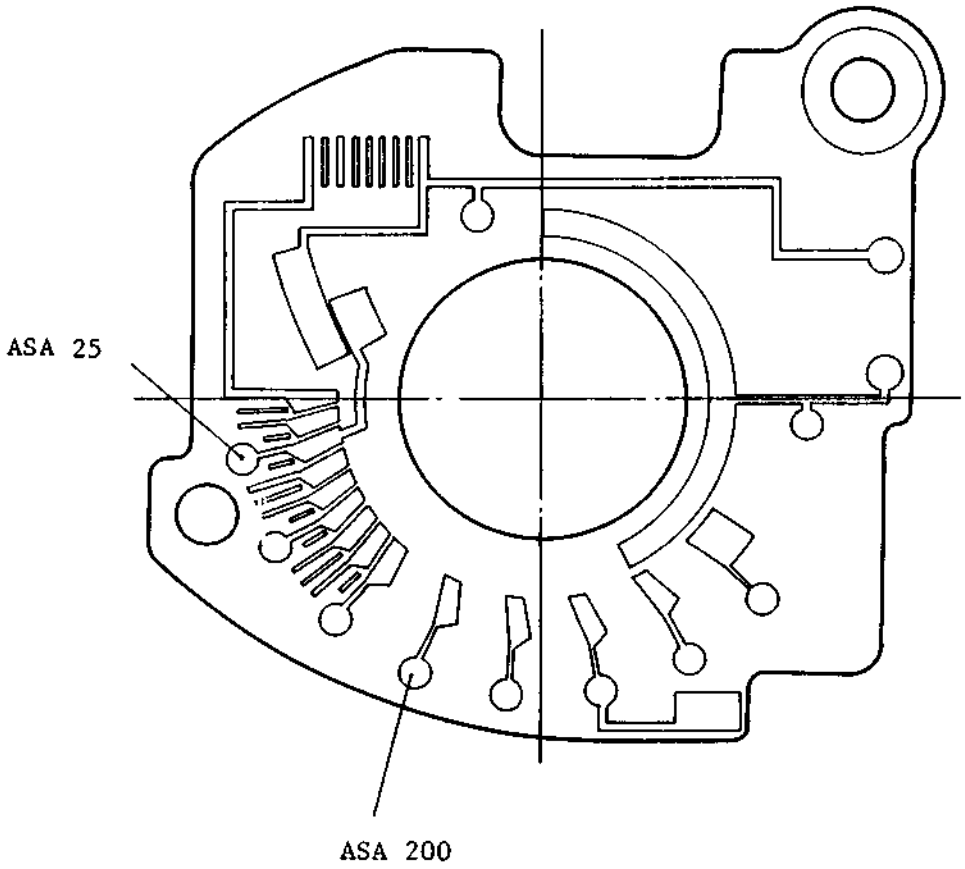

B625
608
B607
607
624
609
※ダレ面がト
770
TJ5272
B603
737
(T2.0)
737
737
628
B637 fig. 4-1
601
622
(T2.8)
733
616
B601
630
G7100
ミゾ部
B620
629
G7100
618
619

Fig. 4

Fig.4-1 ASA brush positioning

Loosen Screws #616 and #733 to slide the ASA base plate so that three tips of the ASA brushes can contact center of the pattern of ASA 200.



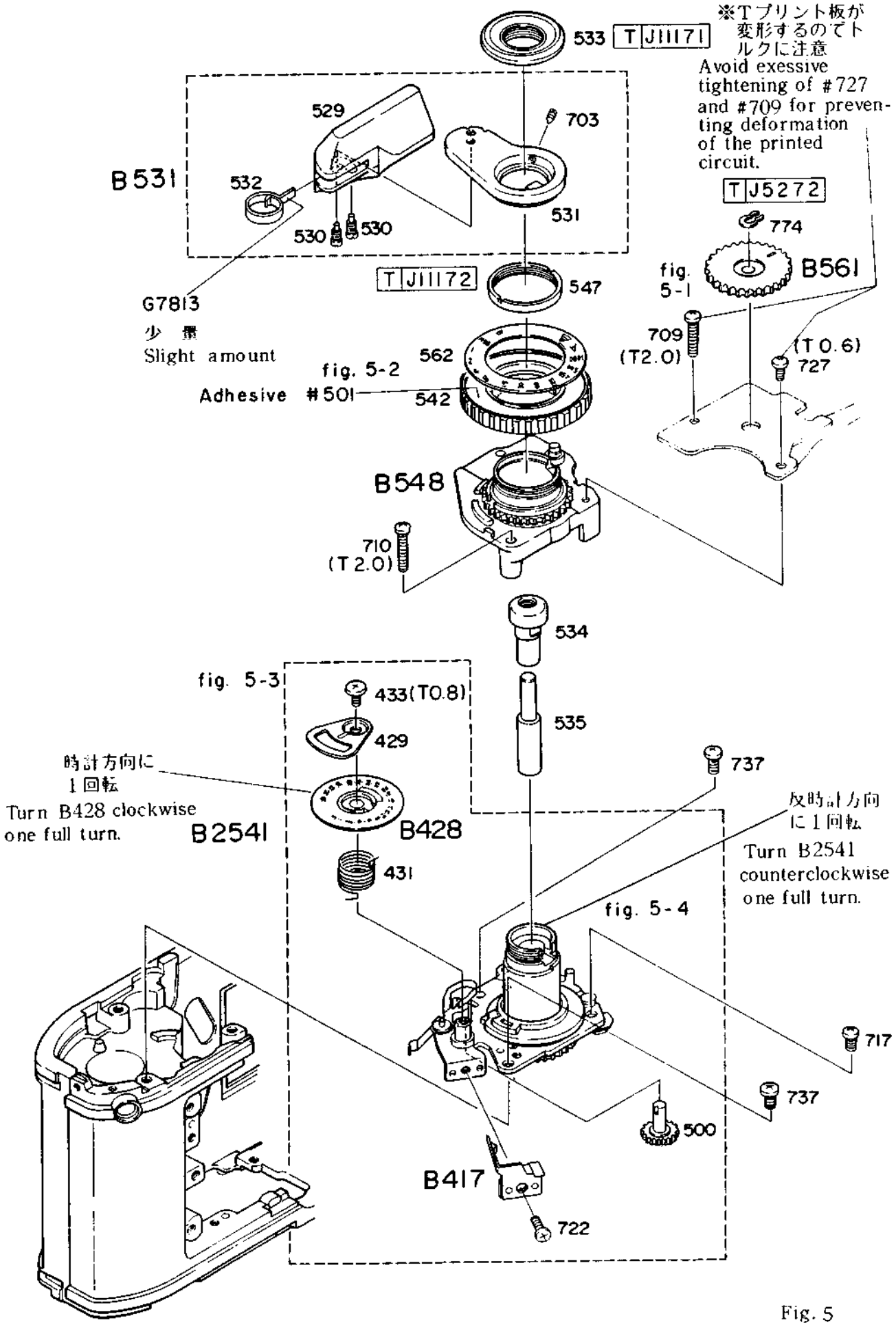

※Tプリント板が変形するのでトルクに注意
Avoid exessive tightening of #727 and #709 for preventing deformation of the printed circuit.
T J5272
533 T J11171
529
703
B531
532
530
530
531
T J11172
547
G7813
少量
Slight amount
562
fig. 5-2
Adhesive #501
542
774
fig. 5-1
B561
709 (T2.0)
(T0.6) 727
B548
710 (T2.0)
534
535
fig. 5-3
433(T0.8)
429
737
時計方向に1回転
Turn B428 clockwise one full turn.
B2541
B428
431
反時計方向に1回転
Turn B2541 counterclockwise one full turn.
fig. 5-4
717
737
500
B417
722

Fig. 5

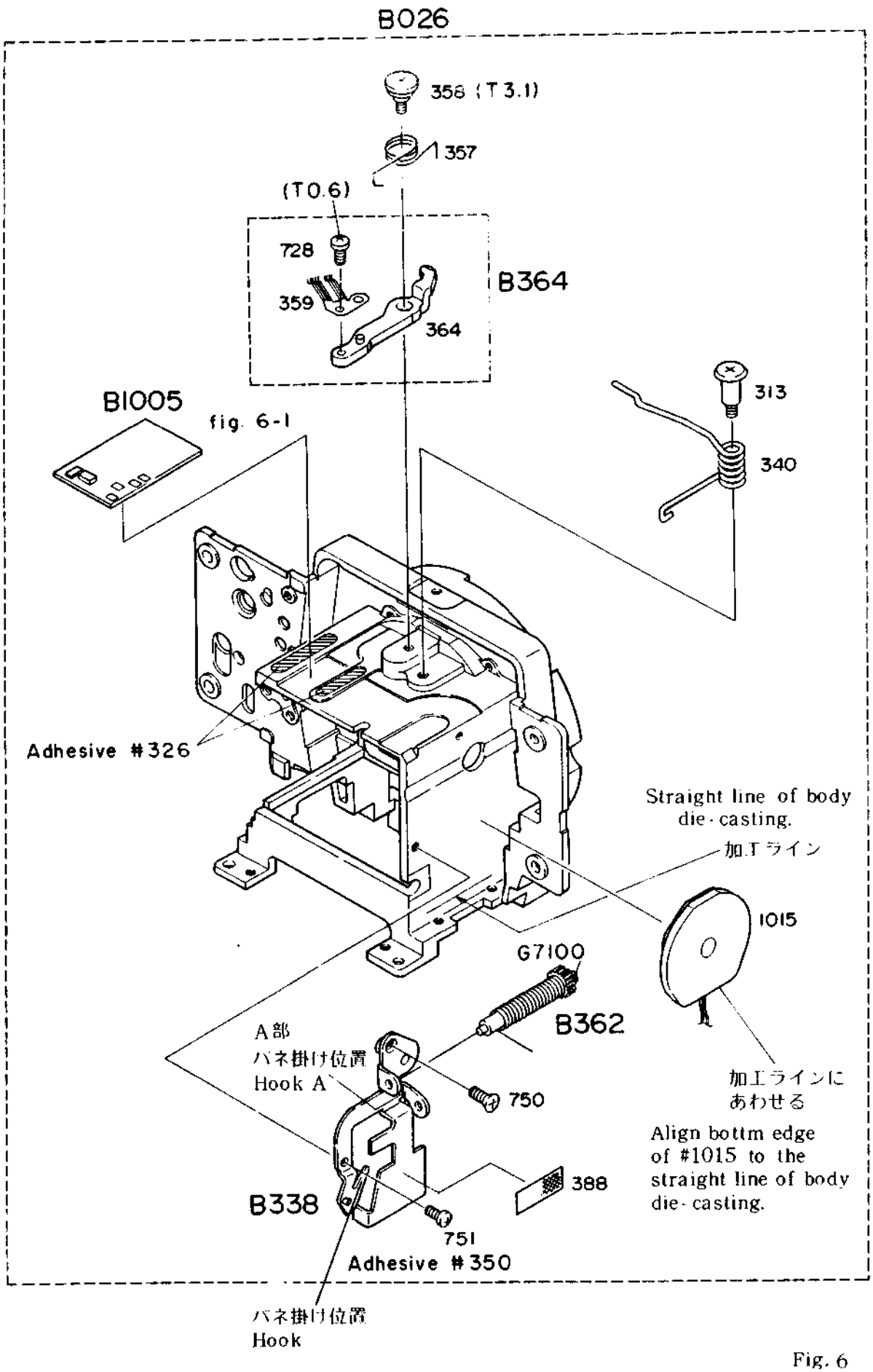
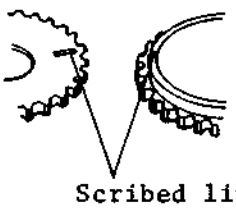

B026
358 (T3.1)
357
(T0.6)
728
359
B364
364
313
340
B1005
fig. 6-1
Adhesive #326
Straight line of body die-casting.
加工ライン
1015
G7100
B362
A部
バネ掛け位置
Hook A
750
加工ラインにあわせる
Align bottm edge of #1015 to the straight line of body die-casting.
388
B338
751
Adhesive #350
バネ掛け位置
Hook

Fig. 6

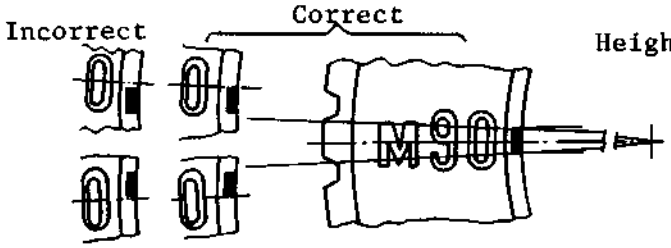
Fig.5-1 Shutter speed dial brush gear installation



Align the scribed line on the shutter speed dial brush gear with that on the shutter speed dial gear when installing.

Replace G-ring #774 with new one when installing

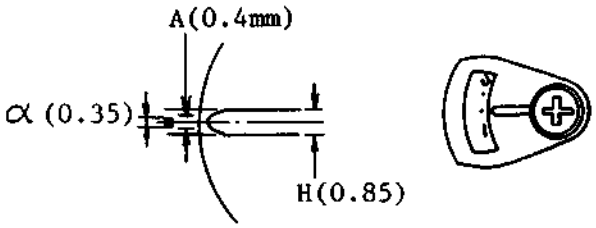
Fig.5-2 Shutter speed index positioning

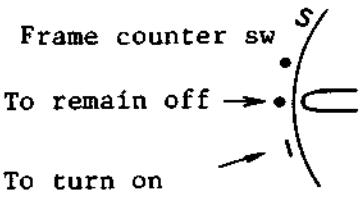


Height of Figure 0: 2.0mm

Center of Figure 0 should be aligned with the shutter speed index.

Fig.5-3 Frame counter index, frame counter switch checking





Center of α should be ±0.2(A) from center of H.

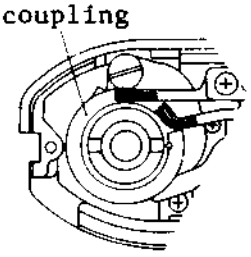
Fig.5-4 Film-advance base unit installation

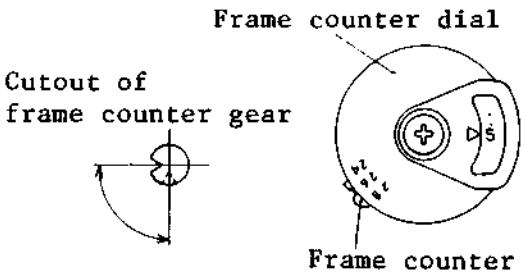
Set the sprocket and MD coupling as shown in the right figure and mount the body die-casting onto Tool J15163. Then set the film-advance base unit and frame counter as shown in the figures below.

Bottom plate of Tool J15163 should be replaced with that of the FG-20.

Installation should be refered to the pertaining section of the repair manual for the EM.

Advance the sprocket teeth by one teeth to the allow direction.





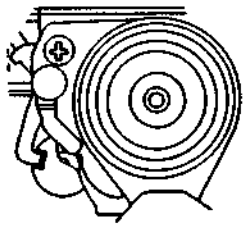
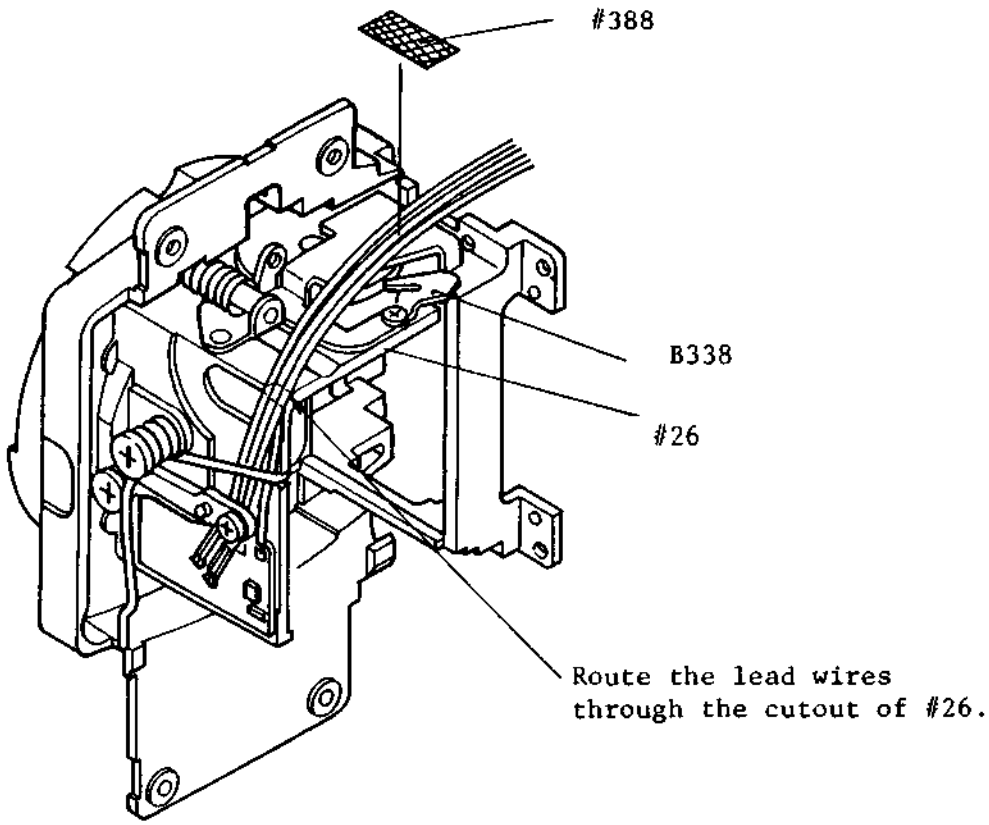


Fig.6-1 Route of fo base plate lead wires



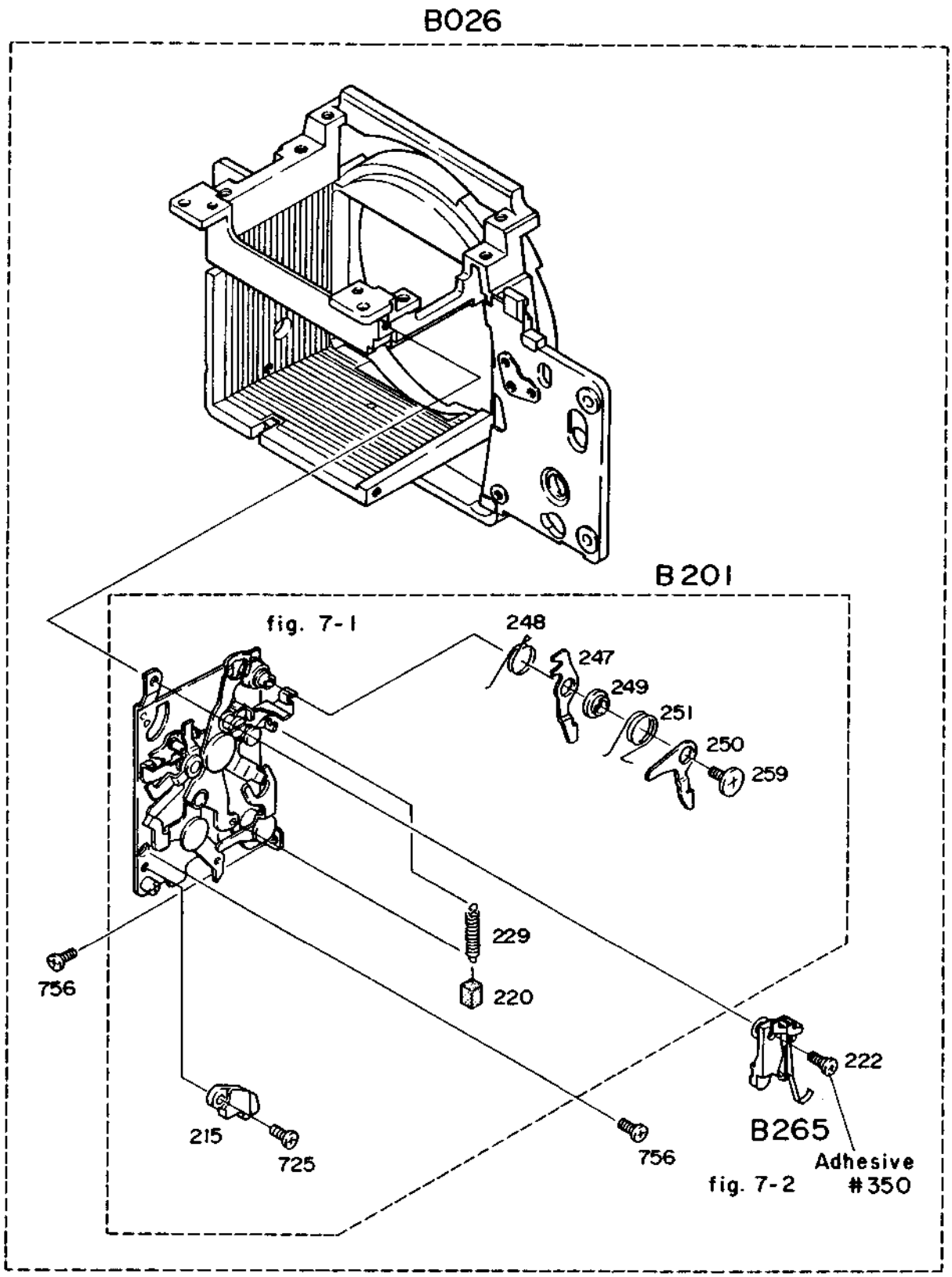

B026
B201
fig. 7-1
248
247
249
251
250
259
229
220
756
215
725
756
222
B265
Adhesive
#350
fig. 7-2

Fig. 7

Fig.7-1 Mirror actuating unit adjustment

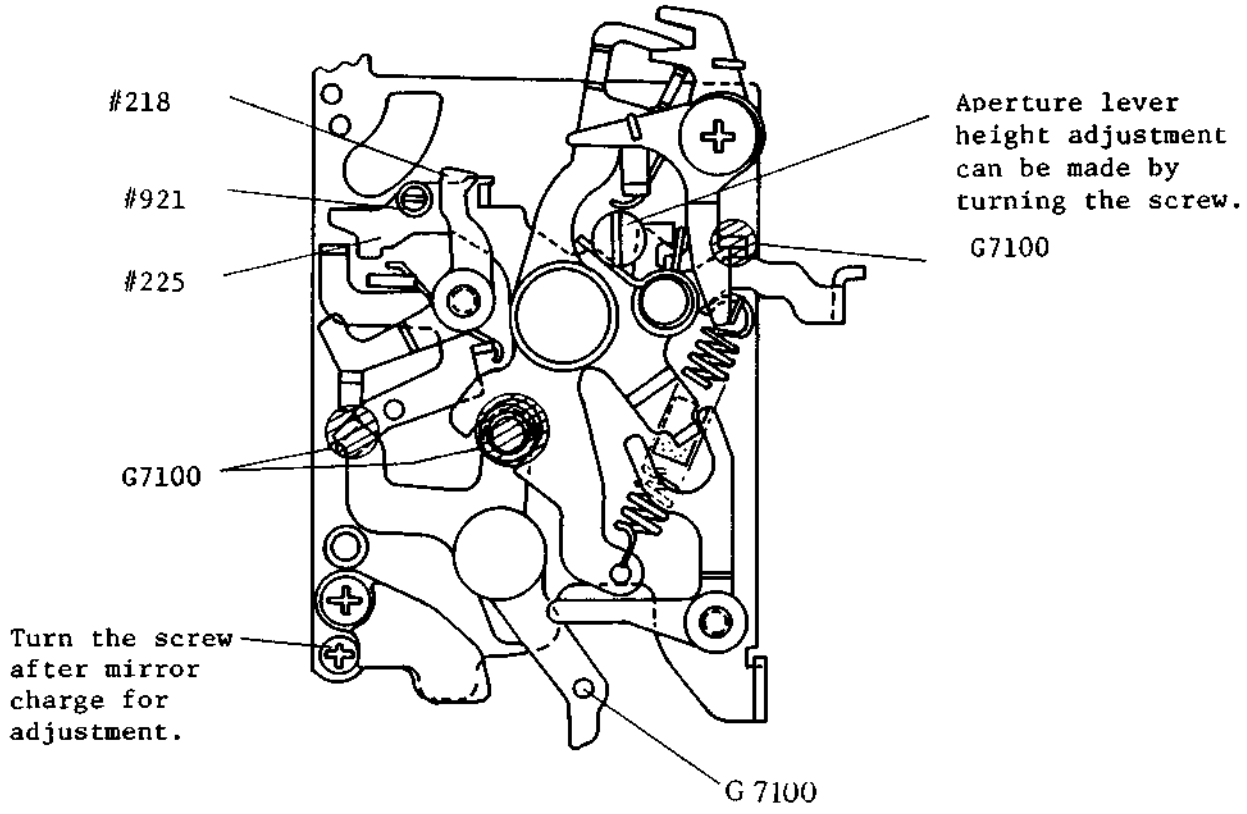


Fig.7-2 Mirror switch adjustment

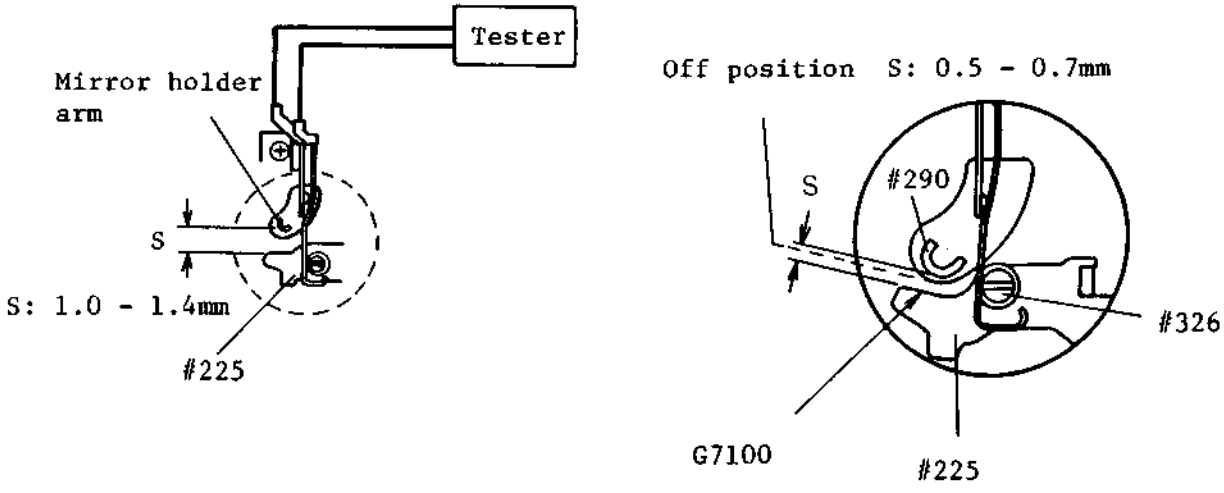
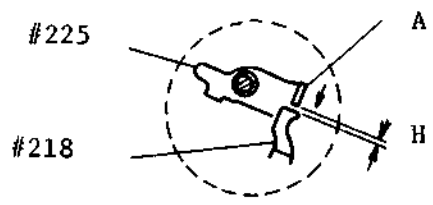


Fig.7-3 Adjustment of clearance between Mirror-up lever #225 and Bound stopper lever #218 in charged condition



Bend Section A of #225 to the arrow direction so that Clearance H becomes 0mm.

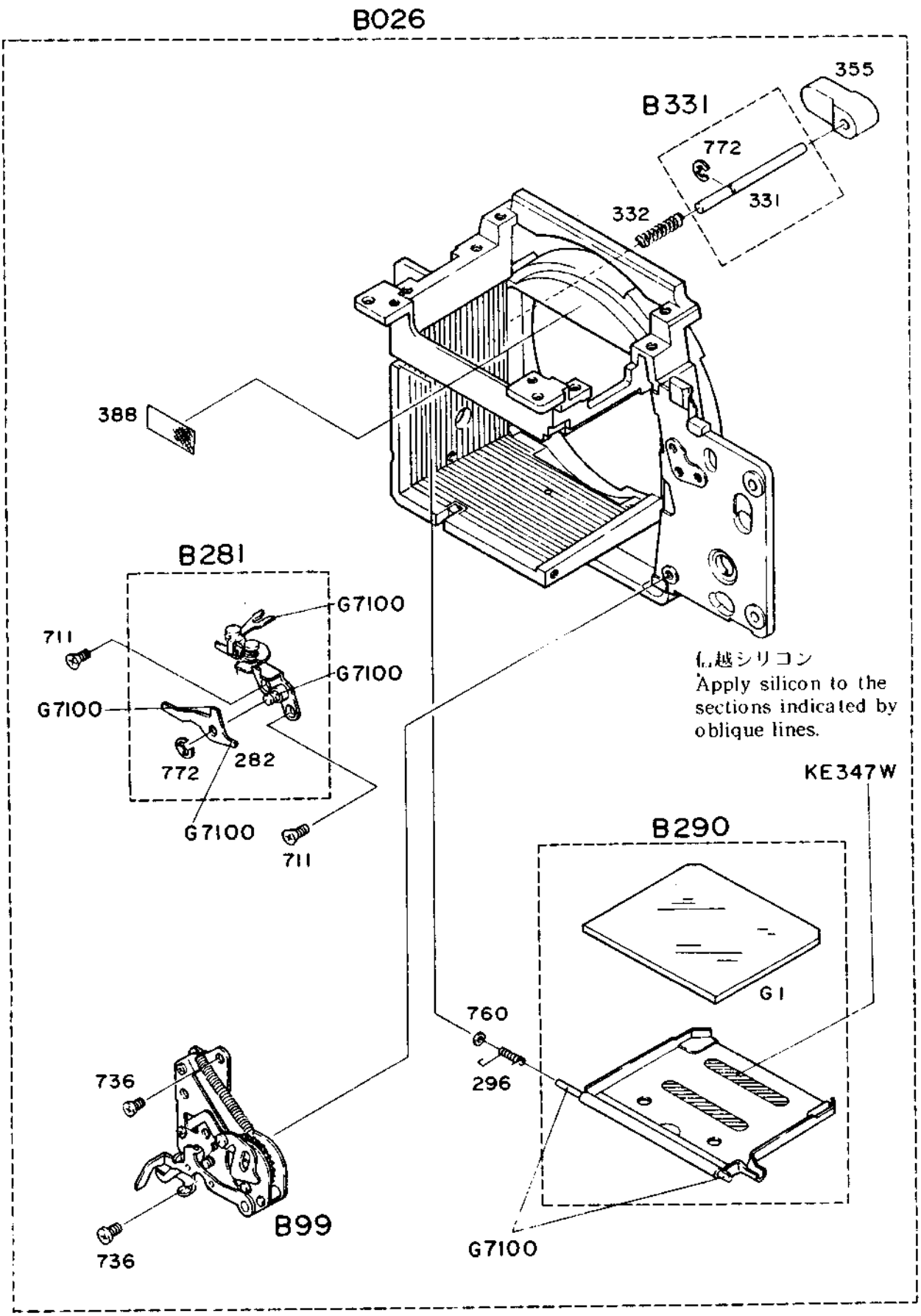

B026
355
B331
772
331
332
388
B281
G7100
711
G7100
G7100
772
282
G7100
711
(.越シリコン
Apply silicon to the sections indicated by oblique lines.
KE347W
B290
G1
760
296
736
736
B99
G7100

Fig. 8

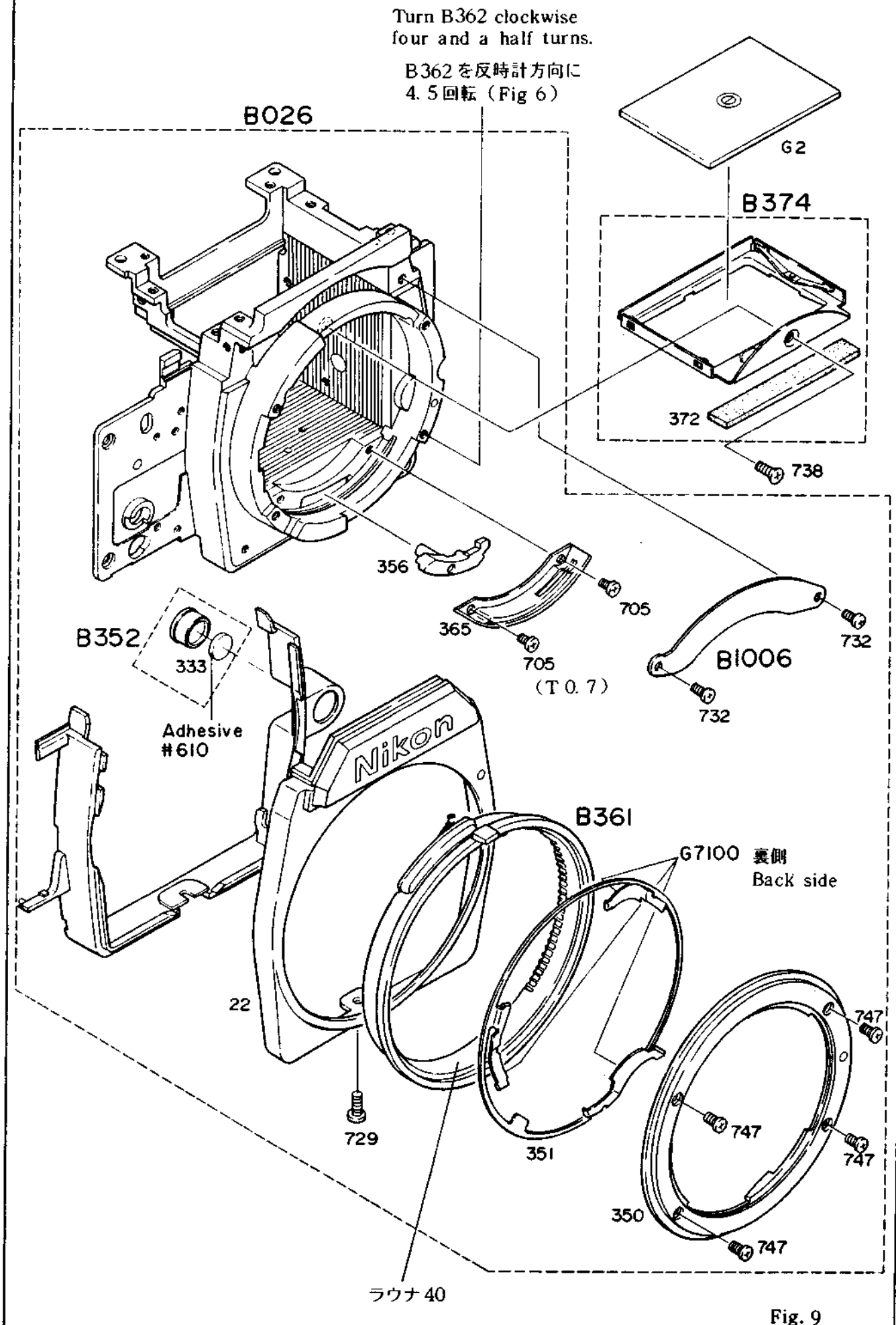

Turn B362 clockwise
four and a half turns.
B362を反時計方向に
4.5回転（Fig 6）
B026
G2
B374
372
738
356
705
365
705
(T 0.7)
B1006
732
732
B352
333
Adhesive
#610
Nikon
B361
G7100 裏側
Back side
22
729
351
747
747
747
350
747
ラウナ40

Fig. 9

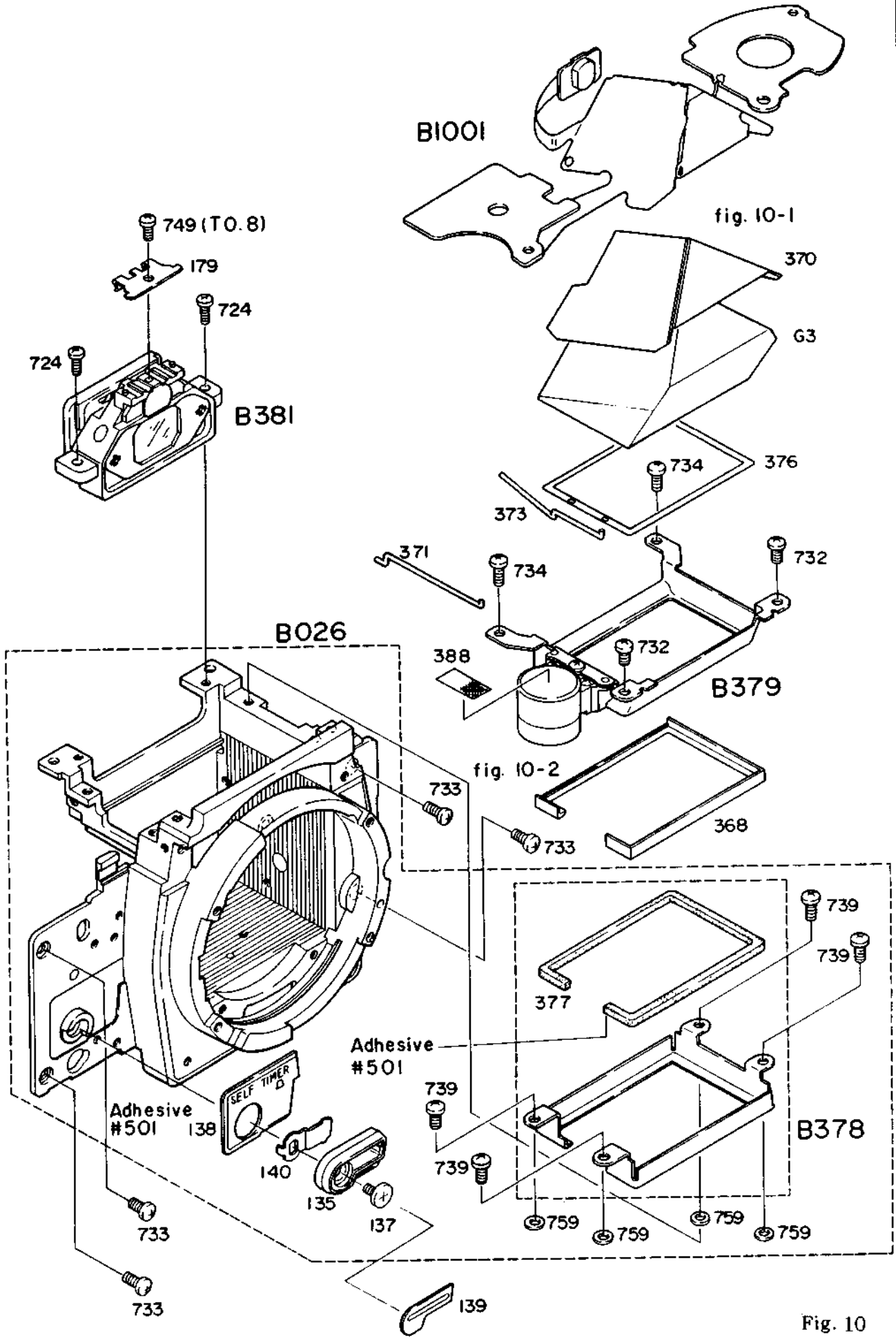

B1001
fig. 10-1
749 (T0.8)
179
724
724
B381
370
G3
376
734
373
371
734
732
732
388
B379
B026
fig. 10-2
733
733
368
739
739
377
Adhesive
#501
739
739
759
759
759
759
B378
Adhesive
#501
138
140
135
137
733
733
139

Fig. 10

Fig.10-1 Soldering of lead wires

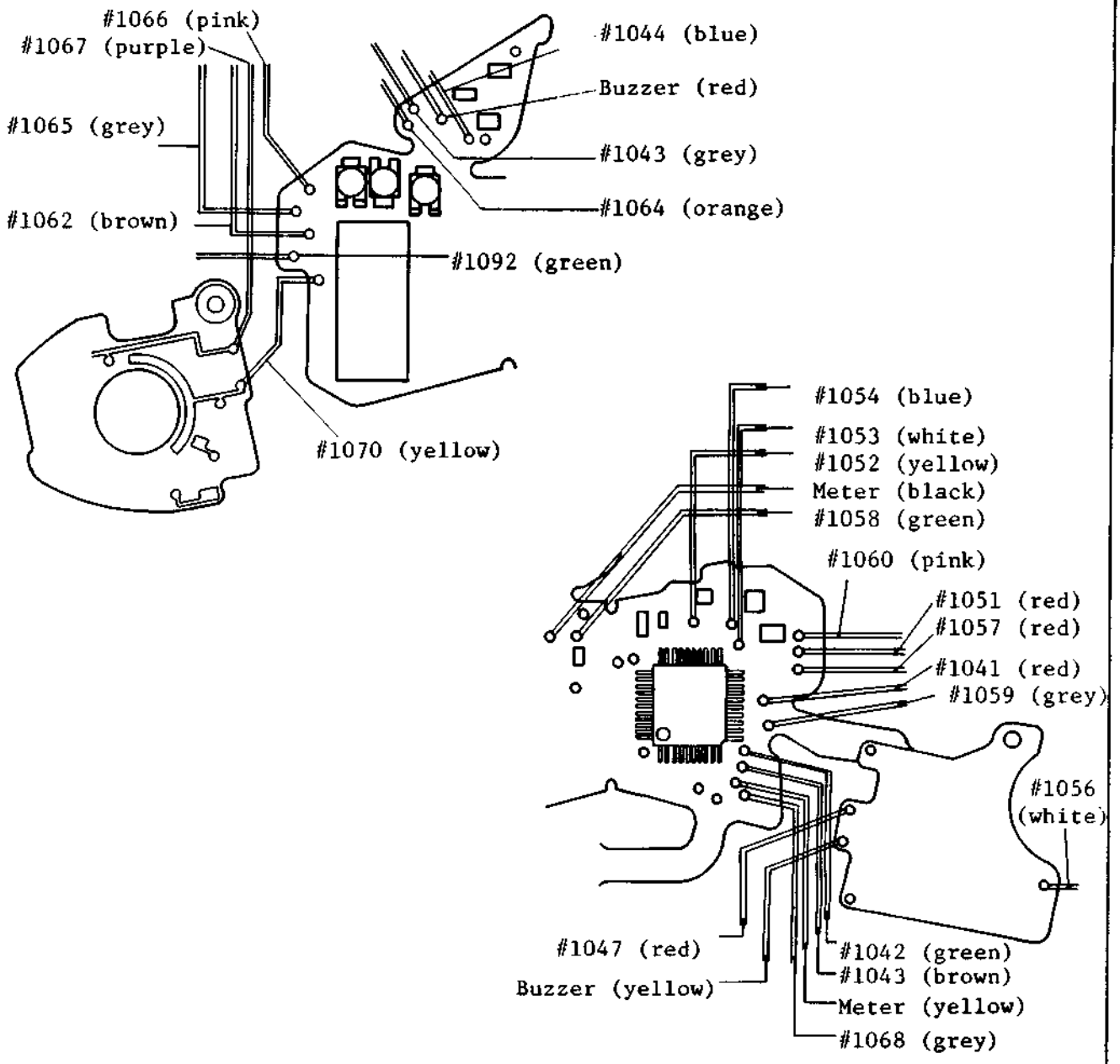
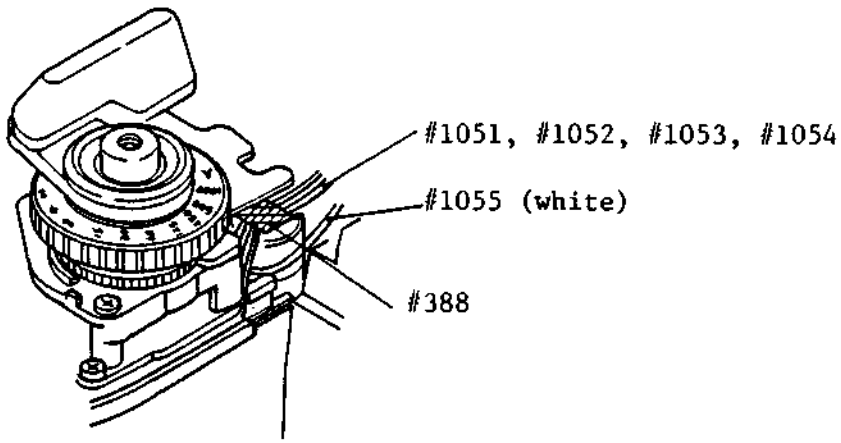


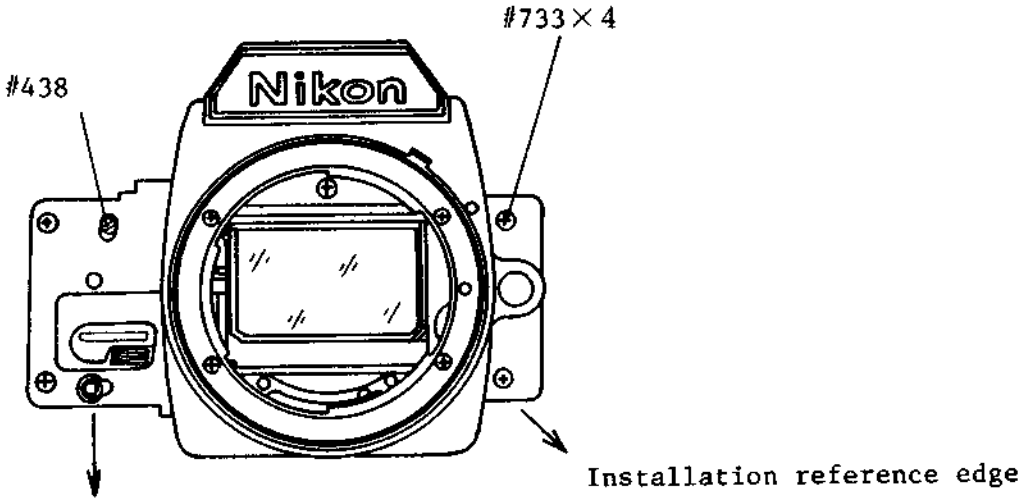
Fig.10-2 Route of lead wires



10-1 Front plate installation

Be sure to set the shutter unit to the charged condition before installing.

When installing, closely fit the right lower part of front plate to body die-casting in the direction of arrow.



Self-timer eccentric pin

T J11154

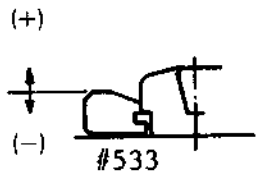
Shutter release start position

Shutter should be released when mirror rises to the position 1 - 3mm from mirror sponge.
Adjustment can be made by turning the self-timer eccentric pin.

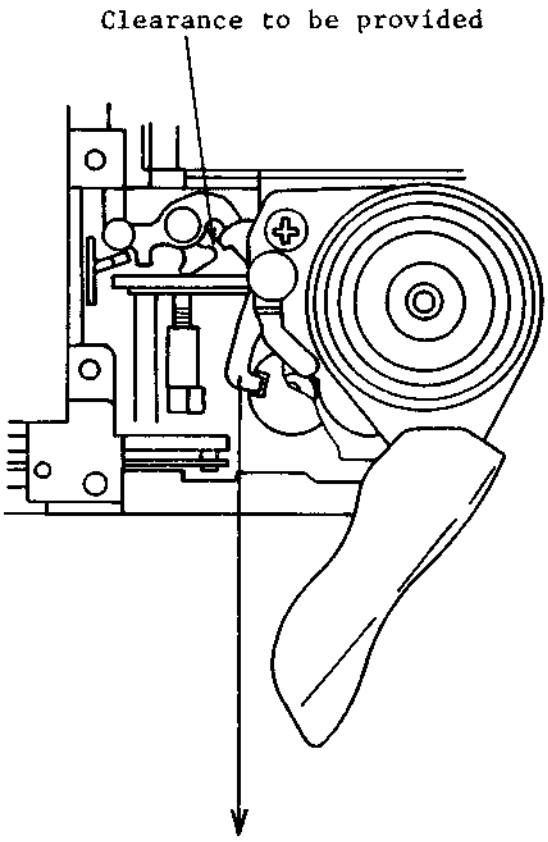
Shutter release button stroke

Standard: -0.2 - -0.6mm from the top of #533

Adjustment can be made by turning Slide lever eccentric pin #438.



10-2 Single frame and continuous shooting mechanism checking



Single-frame film-advancing

When the film-advance lever is fully stroked, the tip of the sprocket stopper lever should entirely engage with the cutout of the sprocket stopper.
At this time, the sprocket stopper lever should not come in contact with the release charge lever.

Continuous film-advancing

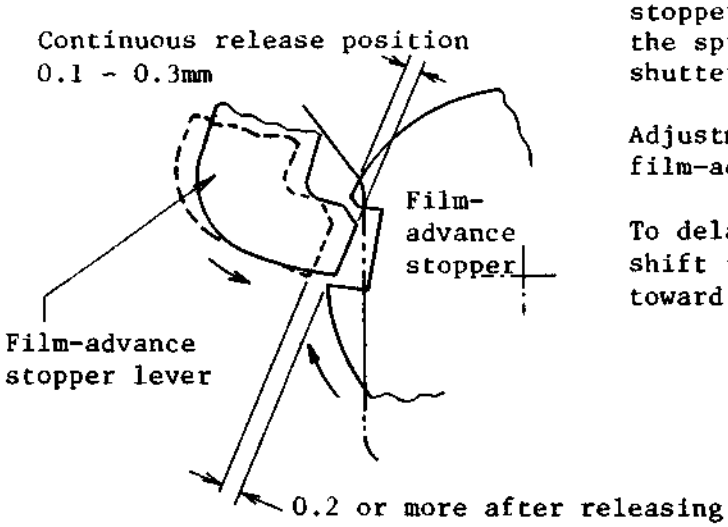
Both shutter and mirror should not start to operate when the tip of the sprocket stopper lever enters mid-way into the cutout of the sprocket stopper.

Both shutter and mirror should not start while the film-advance lever is being stroked.

Set the shutter speed dial to B before checking.
Depressing the shutter release button, slowly stroke the film-advance lever with finger-pressure onto the sprocket and visually inspect the tip of the sprocket stopper lever for proper engagement with the sprocket stopper the moment both shutter and mirror start.

Adjustment can be made by re-locating the film-advance base plate.

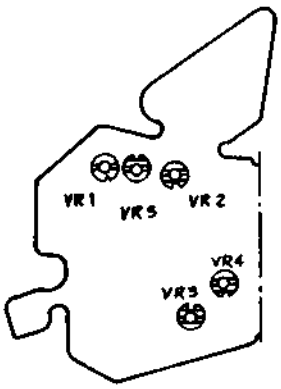
To delay mirror/shutter releasing time, shift the film-advance base plate toward lens mount direction.



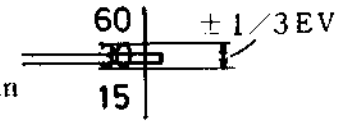
Adjustments

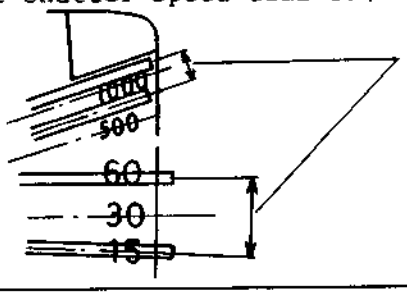
Tools: Standard lens 50mm F1.8, Tool top cover J15236, fo signal adjusting tool J18073, Speedlight SB-E

1	Meter needle indication for blank exposure		To indicate C90 before frame counter reaches 1 on Auto mode.
	Set frame counter to 1 or more		
2	Shutter speeds delivery on M mode	VR2	Set shutter speed dial to 1/30. 31.3ms (29.2 - 33.5ms)
3	Shutter speeds delivery on A mode	VR1	28.2ms (26.3 - 30.2ms) A mode, ASA 100, F4, EV9
	Checking		ASA 100 EV15, F5.6: 0.88ms (0.56 - 1.38ms) EV6, F8: 901ms (683 - 1189ms)



4	Meter level adjustment	VR3	Setting: A mode, ASA 100, F5.6, EV6 Standard: Meter needle should correctly indicate 1/2 sec.
5	Meter RV6	VR4	Setting: A mode, ASA 100, F5.6, EV15 Standard: Meter needle should correctly indicate 1/1000.
	Check Items 4 and 5 again.		
6	Meter accuracy checking		Setting: A mode, ASA 100, F4, EV9 Meter needle should be positioned within a range of arrow.
7	Exposure compensation checking		Setting: A mode, ASA 100, F4, EV9 Meter needle should indicate 1/30 sec. +2±0.3EV when exposure compensation button is depressed.
8	Audible warning checking		Set shutter speed dial to (•) . Warning sound should appear when meter needle is located within a range of arrow.
9	Sync speed checking		Attach the SB-E to the camera and set shutter speed dial to A. Tolerance: 9.5 - 17ms Ready-light LED should light up when the speedlight is charged.
10	fo shift adjustment	VR5	Connect S2 terminal of J18073 to Lead wire #1063 (blue) of the camera, and G terminal of J18073 to the body die-casting respectively via alligator-clip cords. Then connect (+) and (-) terminals of digital-voltmeter to +V and G terminals of J18073 respectively. Standard: 1317±5mV (ASA 100, F5.6)





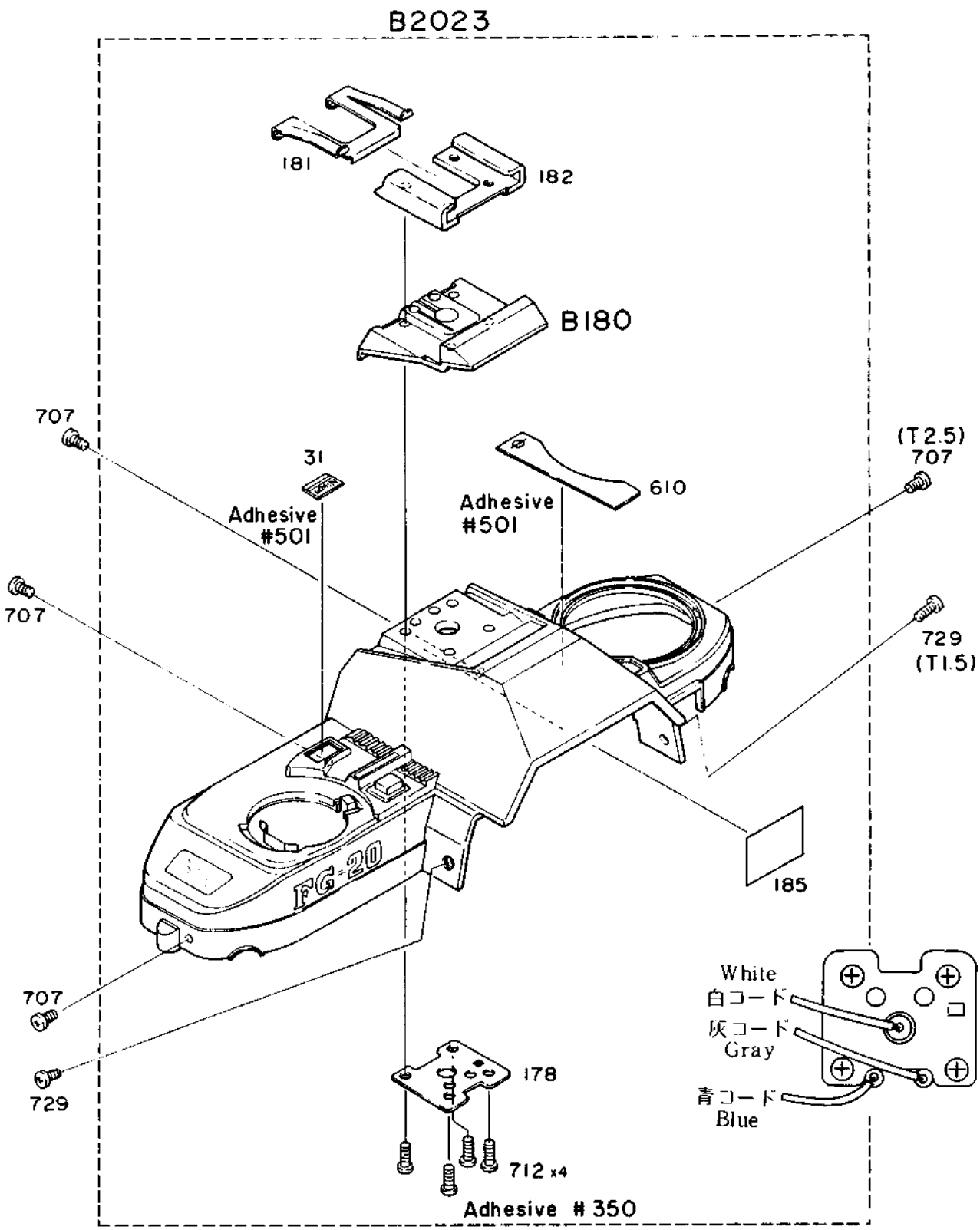

B2023
181
182
B180
707
31
Adhesive #501
610
Adhesive #501
(T2.5) 707
707
729 (T1.5)
185
FG-20
707
729
178
712 x4
Adhesive # 350
White
白コード
灰コード
Gray
青コード
Blue

Fig 11

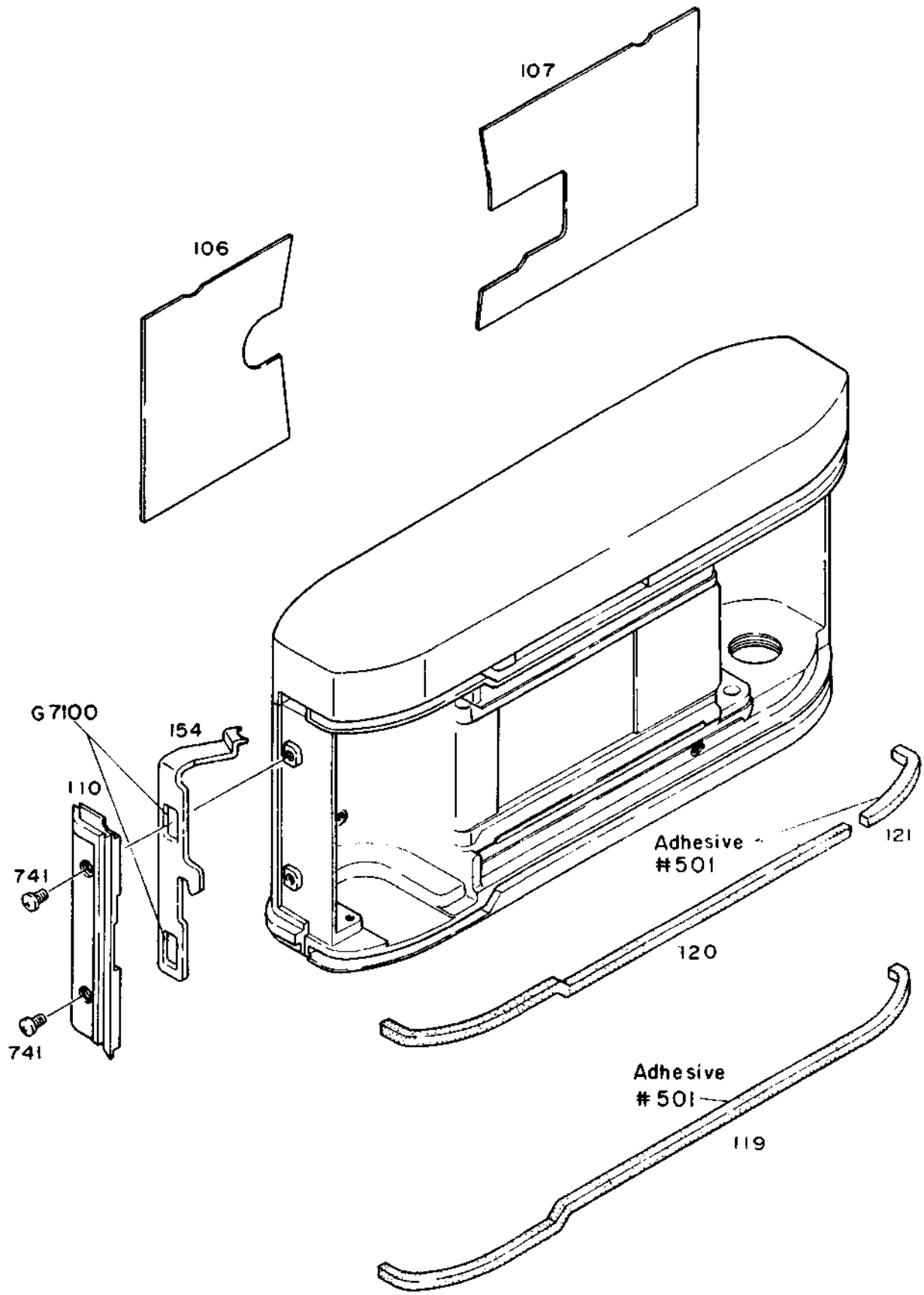
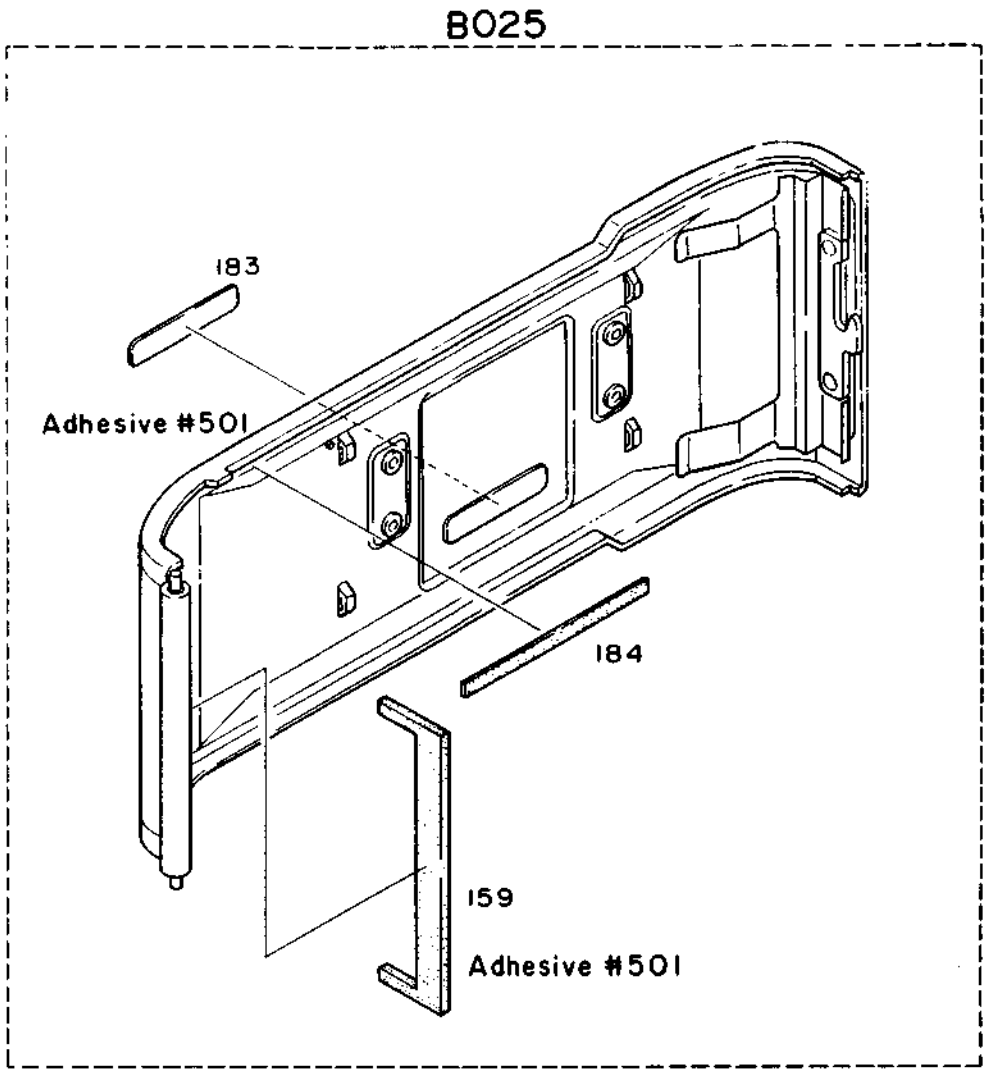

107
106
G7100
154
110
741
741
Adhesive
#501
121
120
Adhesive
#501
119

Fig. 12



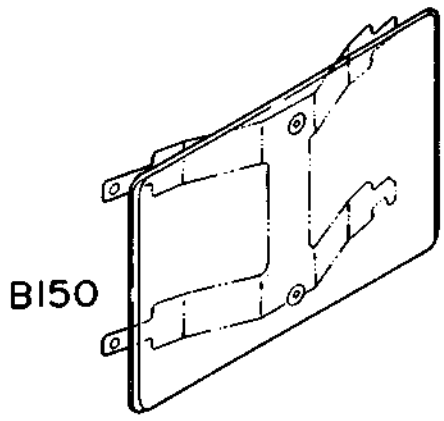


Fig. 13

ELECTRIC CIRCUIT

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[2] CIRCUIT DIAGRAM E2

[3] CIRCUITRY PARTS & IC PINS E4

[4] ELECTRIC POTENTIAL OF FPC E8

[5] TIMING CHART

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2. Audible warning sequence E10

[6] CIRCUITRY OUTLINES

1. Frame counter switch (FCSW) E11

2. Power switch, Bias

3. Mirror switch (MSW)

4. Information resistor input E12

5. Metering E13

6. Exposure computation E14

7. Meter

8. Shutter speed control on Auto mode E15

9. Shutter speed control on Manual mode E17

10. Shutter speed control on Speedlight mode

11. Auto/Manual mode detection E18

12. Audible warning circuit

13. Battery check circuit E20

14. Power hold circuit E21

15. Ready-light circuit

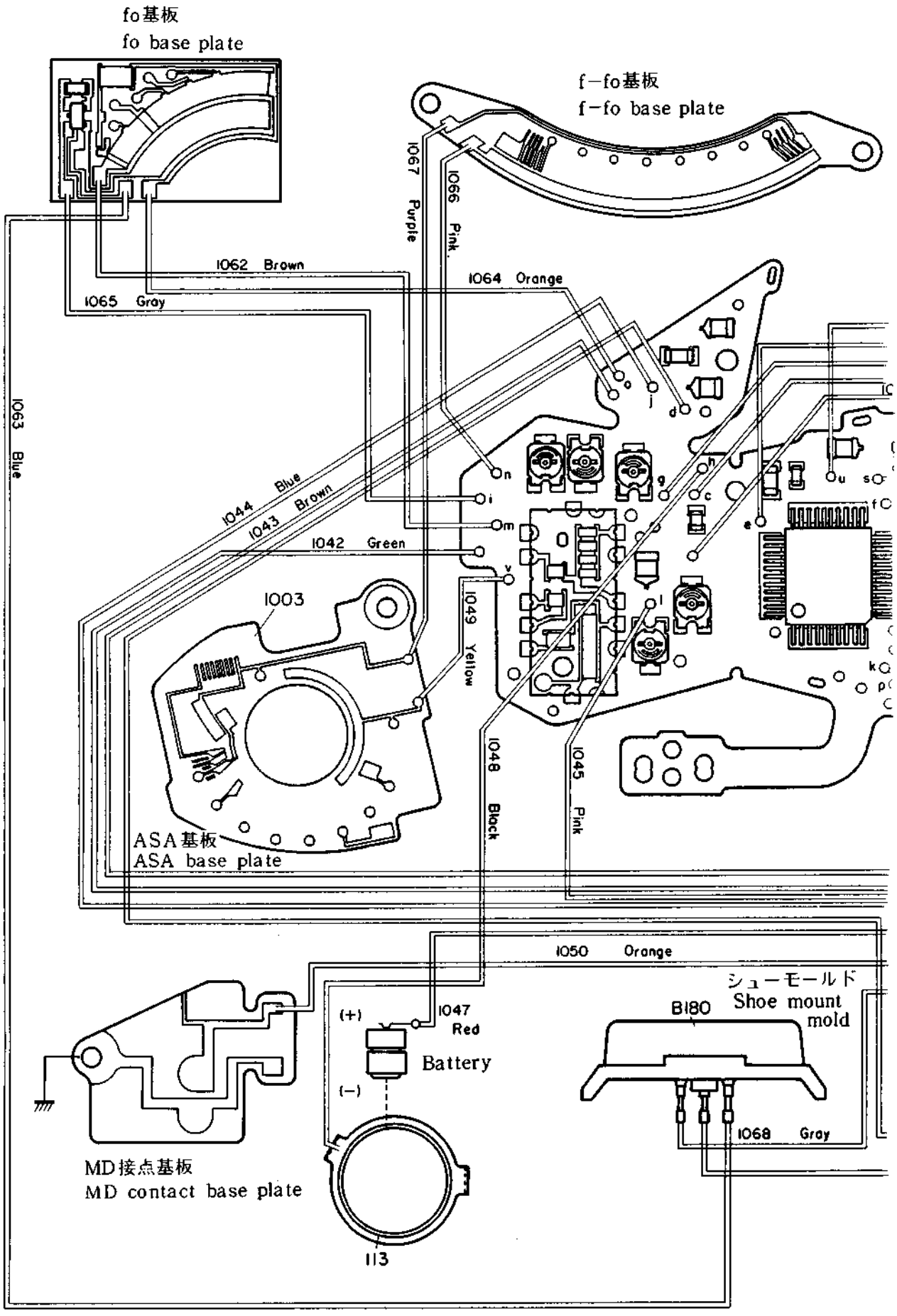
16. Flash output control circuit E22

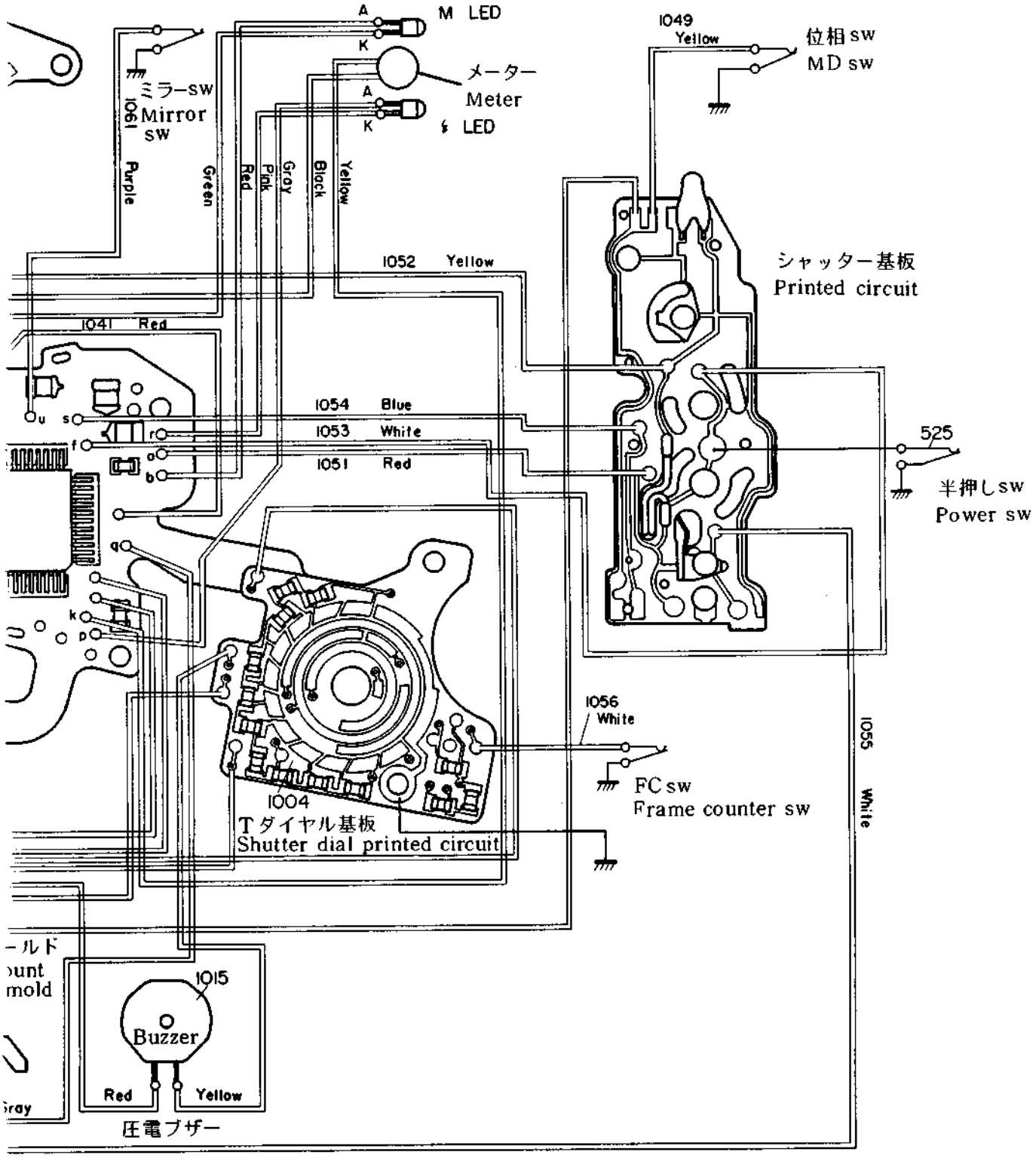
17. Manual mode indication LED E23

18. Mirror switch, Trigger switch

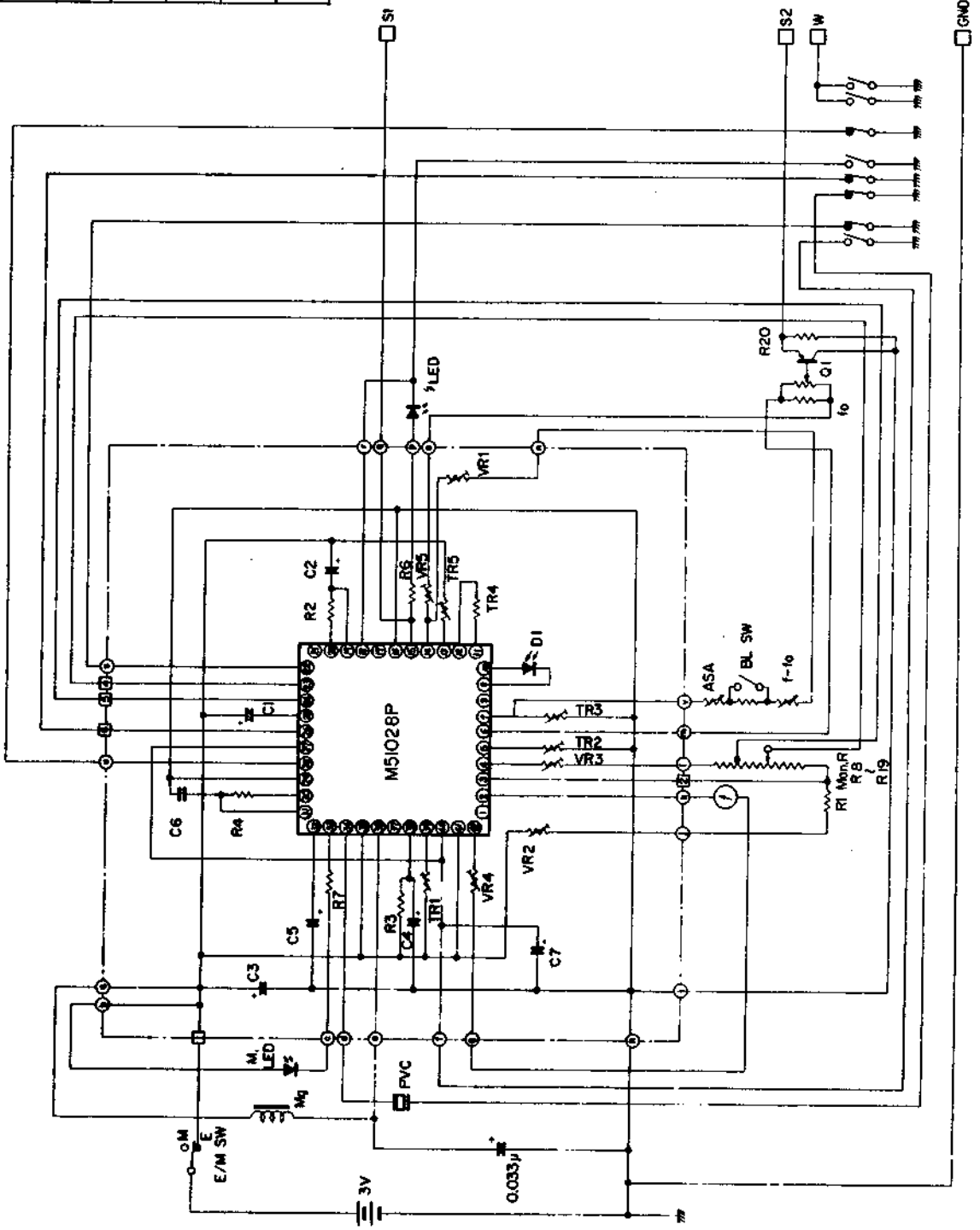
[7] TROUBLESHOOTING FLOWCHART C1

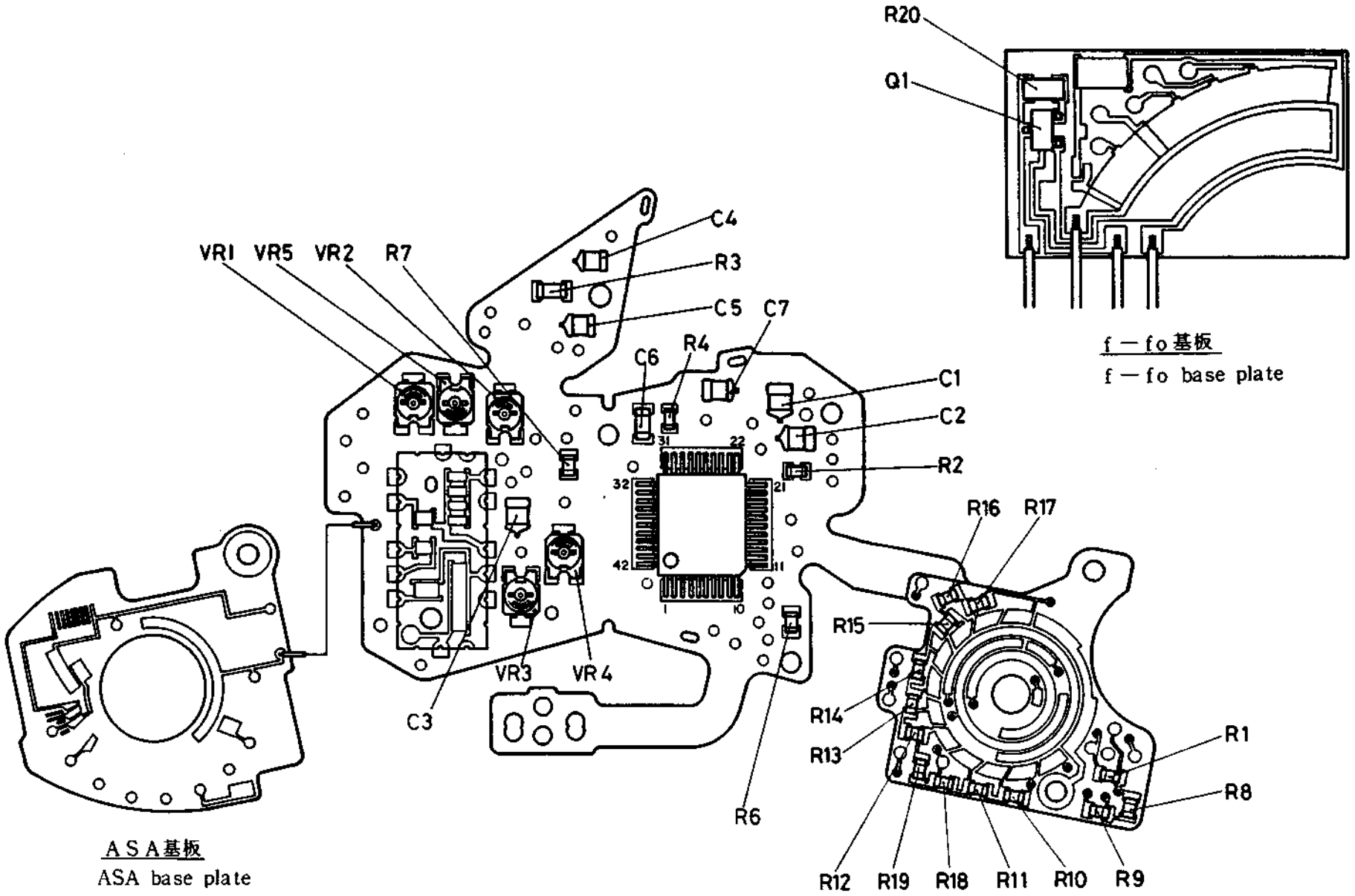
〔1〕 実体配線図 WIRING DIAGRAM

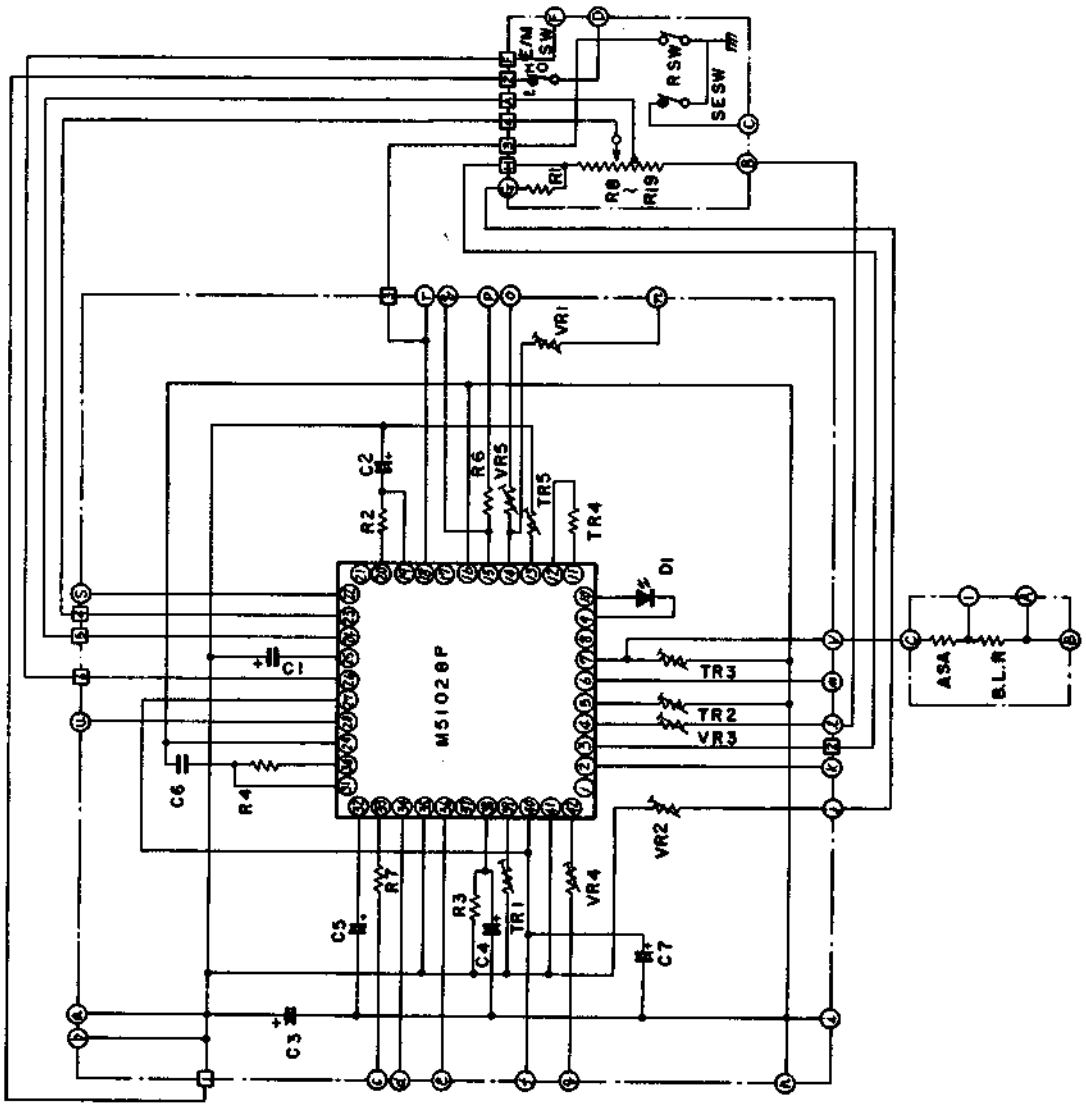



A
M LED
K
メーター
Meter
A
K
LED
ミラーsw
1061
Mirror
sw
Purple
Green
Red
Pink
Gray
Black
Yellow
1049
Yellow
位相sw
MD sw
1052 Yellow
シャッター基板
Printed circuit
1041 Red
1054 Blue
1053 White
1051 Red
525
半押しsw
Power sw
1056
White
1055
White
FC sw
Frame counter sw
1004
Tダイヤル基板
Shutter dial printed circuit
1015
Buzzer
Red
Yellow
圧電ブザー

H sw	半押 sw Power sw
T sw	トリガー sw Trigger sw
SE sw	音消し sw Silence sw
FC sw	カウンター sw Frame counter sw
R sw	レディ sw Ready-light sw
M sw	ミラー sw Mirror sw
E/M sw	電源切替 sw Power ON/OFF sw




R20
Q1
f－fo基板
f－fo base plate
VR1 VR5 VR2 R7
C4
R3
C5 C7
C6
R4
C1
C2
R2
R16 R17
R15
R14
R13
R1
R8
R6
R12 R19 R18 R11 R10 R9
VR3 VR4
C3
ASA基板
ASA base plate
Tダイヤル基板
Shutter dial base plate


M51026F
VR1
VR2
VR3
VR4
VR5
TR1
TR2
TR3
TR4
TR5
R1
R2
R3
R4
R5
R6
R7
R8 ~ R19
C1
C2
C3
C4
C5
C6
C7
D1
RSW
SESW
ASA
B.L.R

Circuitry parts list

*1: Shutter speeds delivery on Auto mode
*2: Shutter speed delivery on Manual mode

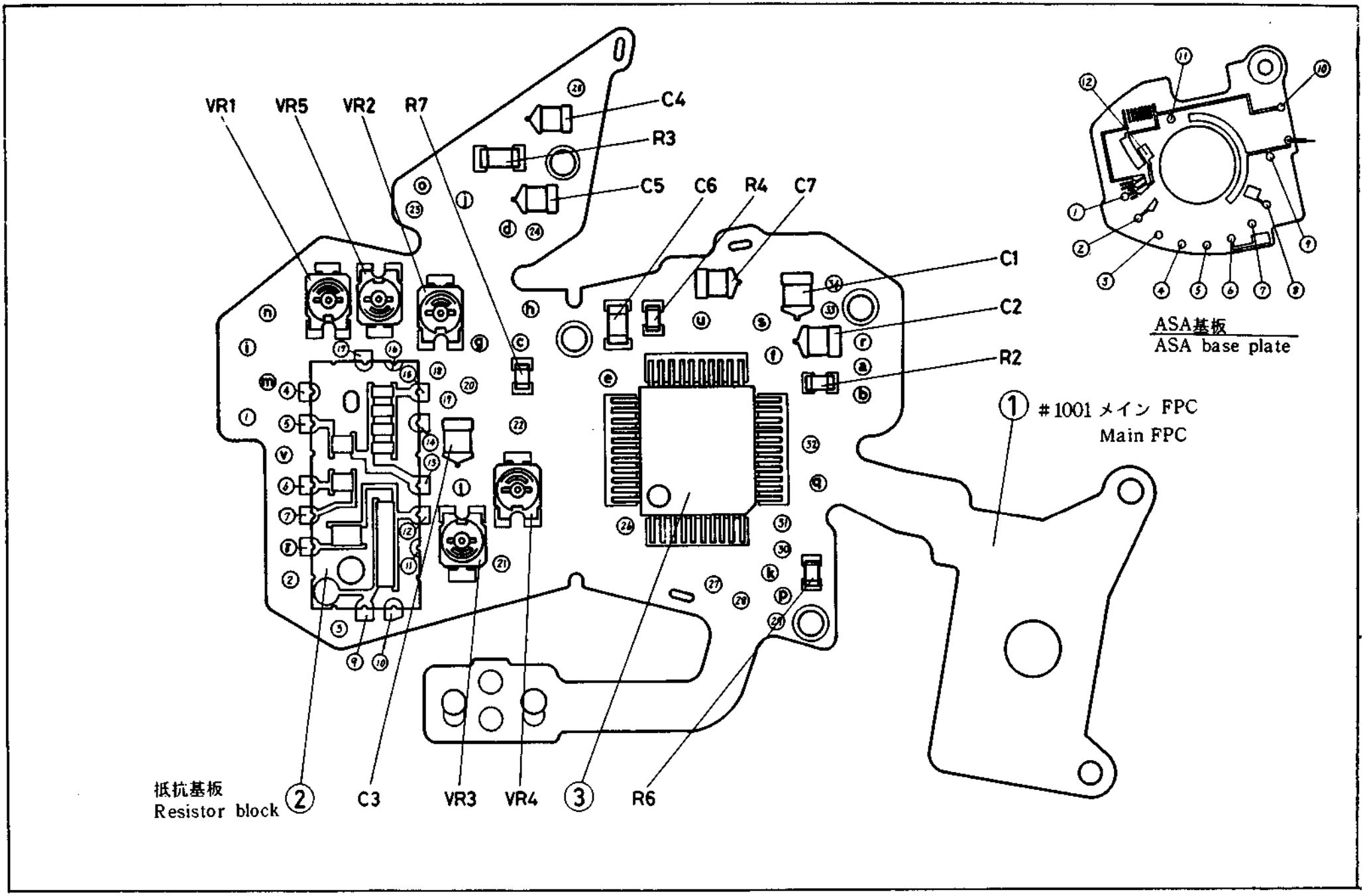
Index		Name
VR1	6.8K	*1
VR2	4.7K	*2
VR3	4.7K	Meter shift
VR4	680	Meter γ
VR5	10K	fo shift
Q1	PNP	fo transistor
C1	3.3μ	Memory condenser
C2	1.0μ	Timer condneser
C3	6.8μ	Power source condenser
C4	4.7μ	Power hold condenser
C5	4.7μ	2.5Hz oscillation condenser
C6	2200P	4kHz oscillation condenser
C7		

Index		Name
R1	4.7K	Manual resistor
R2	180	Trigger resistor
R3	9.1M	Power hold resistor
R4	240K	4kHz oscillation resistor
R6	1K	"M" LED resistor
R8	910	Shutter dial resistor
R9	910	- ditto -
R10	910	- ditto -
R11	910	- ditto -
R12	910	- ditto -
R13	910	- ditto -
R14	910	- ditto -
R15	910	- ditto -
R16	910	- ditto -
R17	910	- ditto -
R18	470	- ditto -
R19	430	- ditto -
R20	2.2M	fo resistor

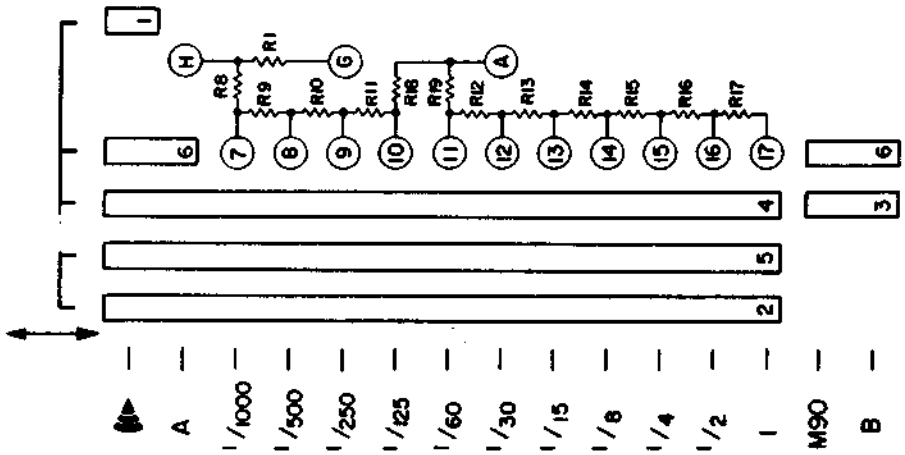
IC pin

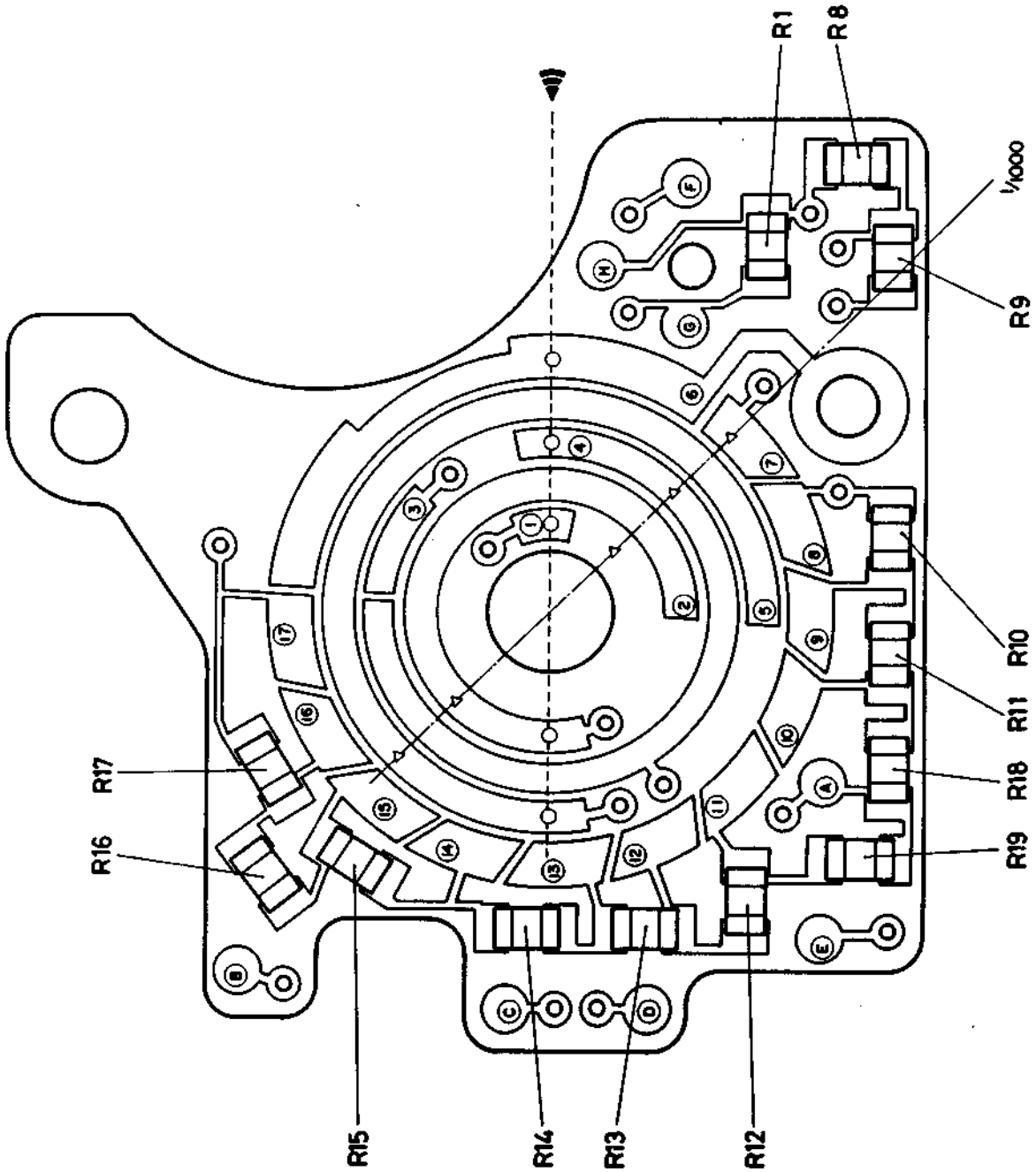
*3: Ready-light control

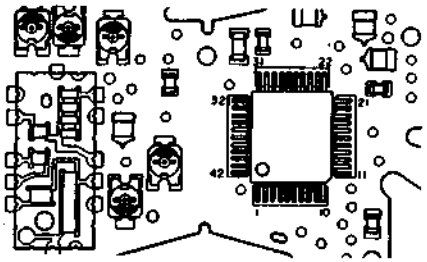
No.	Name	No.	Name	No.	Name
1	NC	15	Strobo input	29	GND2
2	Meter output 1	16	GND1	30	4kHz R
3	1/2000	17	NC	31	4kHz C
4	Meter shift	18	*3	32	2.5Hz C
5	Manual γ	19	Timer 1	33	"M" LED
6	fo	20	Timer 2	34	PVC
7	120mV bias	21	NC	35	Vcc2
8	NC	22	Trigger sw	36	Shutter Mg
9	Metering output 1	23	Manual input	37	GND2
10	Metering output 2	24	1/90	38	Power hold
11	Metering output	25	Memory	39	B.C
12	1.2V bias	26	Frame counter sw	40	Power sw
13	Auto γ	27	D.B	41	Vcc1
14	Information input	28	Mirror sw	42	Meter output 2


VR1
VR5
VR2
R7
C4
R3
C5
C6
R4
C7
C1
C2
R2
C3
VR3
VR4
R6
ASA基板
ASA base plate
① #1001 メイン FPC
Main FPC
② 抵抗基板
Resistor block
③

ダイヤル基板
Shutter dial printed circuit







I. Normal condition

1. Settings: LV9, ASA 100, F4, 1/30 sec.
   Lcc 3V, Frame counter switch (FCWS) ON,
   Exposure compensation switch OFF

2. Metering: Power switch (HSW) ON, Mirror switch (MSW) ON, Trigger switch (TSW) ON

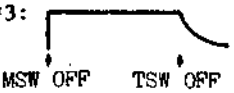
   Shutter release (mirror-up): HSW ON, MSW OFF, TSW ON

II. Abbreviations: 1. Approx.: ±0.1V, 2. : The voltage is not constant.

III. Measurement voltage: GND reference

Index	Name	Metering	Shutter release	Remark	Index	Name	Metering	Shutter release	Remark
1	NC	NC	NC		21	NC	NC	NC	
2	Meter output 1	Approx. 1.6	Approx. 1.6	*1	22	TSW	0	0	*4
					23	M mode input	2.4-2.6	2.4-2.6	*5
3	1/2000	2.7-2.8	2.7-2.8		24	1/90	2.5-2.7	2.5-2.9	
4	Meter shift	Approx. 2.3	Approx. 2.3		25	*6	Approx. 2.5		
5	Maual	0.39-0.63	0.39-0.63		26	FCSW	0	0	
6	fo	0.9	0.9		27	HSW	0	0	
7	120mV bias	0.10-0.14	0.10 0.14		28	MSW	0	0.6	
8	NC	NC	NC		29	GND2	0	0	
9	*7	0.4-0.5	0.4-0.5		30	4kHz R	2.9-3.0	2.9-3.0	
10	*8	0.4-0.5	0.4-0.5		31	4kHz C	Approx. 0.6	Approx. 0.6	
11	*9	Approx. 0.7	Approx. 0.5		32	2.5 kHz C	0	0	
12	1.2V bias	Approx. 1.2	Approx. 1.2		33	*10	0-0.2	Approx. 0.6	
13	Auto	2.4-2.6	2.2-2.4		34	PVC	2.4-3.0	2.4-3.0	
14	*11	Approx. 0.5	Approx. 0.5		35	Vcc 2	3.0	3.0	
					36	*13	3.0	0.2 or less	
15	*12	0	0	*2	37	NC	NC	NC	
16	GND 1	0	0		38	Power hold	0.2 or less	Approx. 2.4	
17	NC	NC	NC						
18	*14	0	0		39	*15	Approx. 2.4	Approx. 2.4	
19	Timer 1		2.8-3.0	*3	40	HSW	0	0	
20	Timer 2		2.9-3.0	*3	41	Vcc 1	3.0	3.0	
					42	*16	1.3-1.4	1.3-1.4	

*1: FCSW OFF on Auto mode (approx. 2.3V) *2: 2.6-3.4V while ready-light LED lights up

*3: 

*4: OFF: closing curtain travel (0.7V) ON: film-advancing (0V)

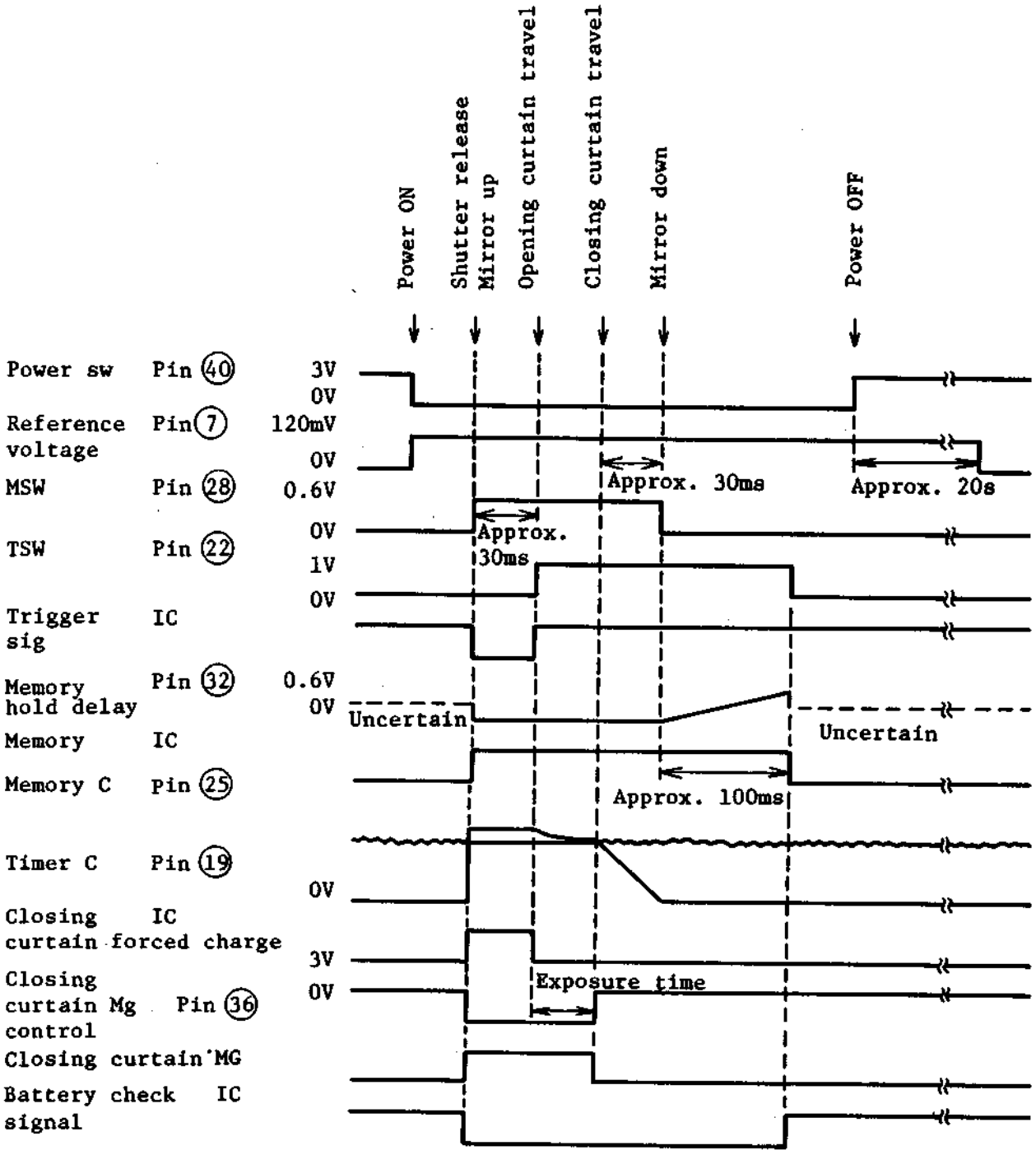
*5: Auto mode: 0V, Manual 1/1 sec.:approx. 2.35V, Manual 1/1000 sec.: approx. 2.7V

*6: Memory condenser, *7: Metering input 1, *8: Metering input 2, *9: Metering output

*10: M mode LED, *11: Information input, *12: Strobo input, *13: Shutter Mg

*14: Ready-light control, *15: Battery check, *16: Metering output 2

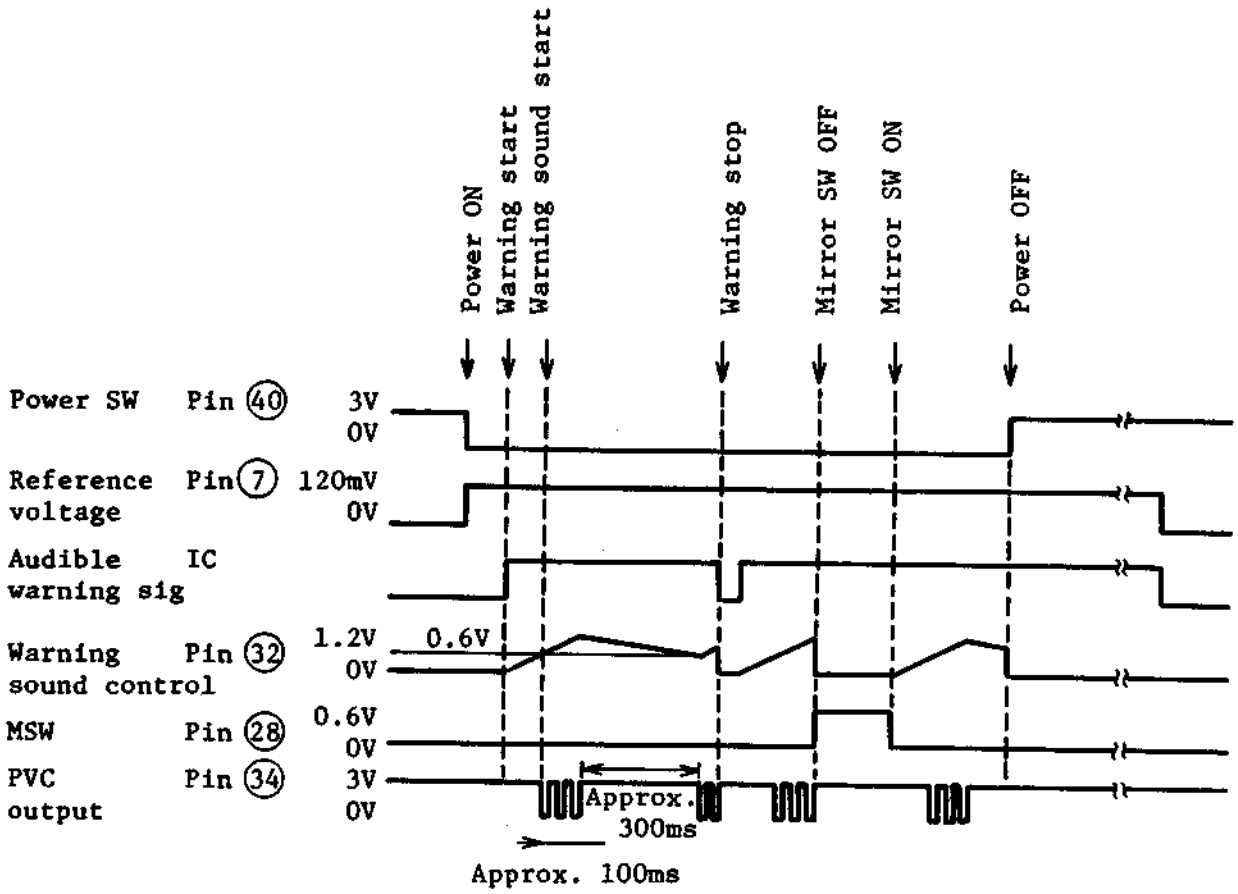
1. Shutter release sequence



Warning sound is disappeared while memory is held.

Manual mode indication LED turns off while MSW is off.

2. Audible warning sequence



When FCSW is off, the wave of FCSW is equal to that of Audible warning signal.

1. Frame counter switch (FCSW)

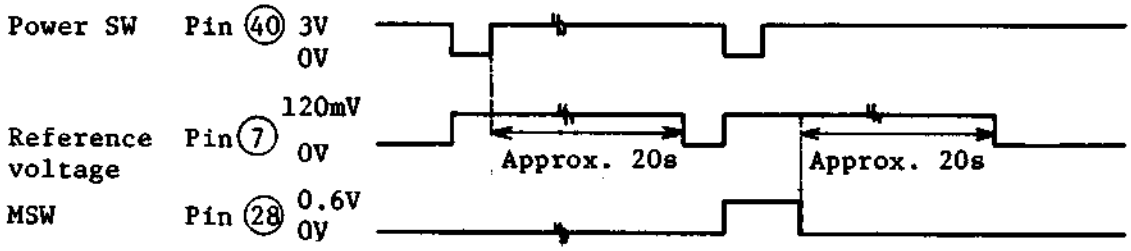
Frame counter		S, ., .	1 or more
FCSW		OFF	ON
Shutter speed	Auto	1/90	NORMAL
	Manual	NORMAL	
Meter needle	Auto	C90	NORMAL
	Manual	NORMAL	

When the frame counter switch remains off on Auto mode, FRAME COUNTER SIGNAL is inputted into the meter so that the meter needle can indicate C90.

The voltage of Pin (26) : 0V (FCSW ON)
Approx. 0.3V (FCSW OFF)

2. Power switch , Bias

Depressing the shutter release button halfway turns the power switch on to operate BIAS CIRCUIT. When BIAS CIRCUIT is in operation, the reference voltage generates at Pin(7).



BIAS CIRCUIT turns off after approx. 20 sec. from the power switch off. When the mirror switch (MSW) is held off after 20 sec. power hold timing, power hold will start again when MSW turns on.

3. Refer the sequences of the mirror switch (MSW), trigger switch (TSW) and others to TIMING CHART.

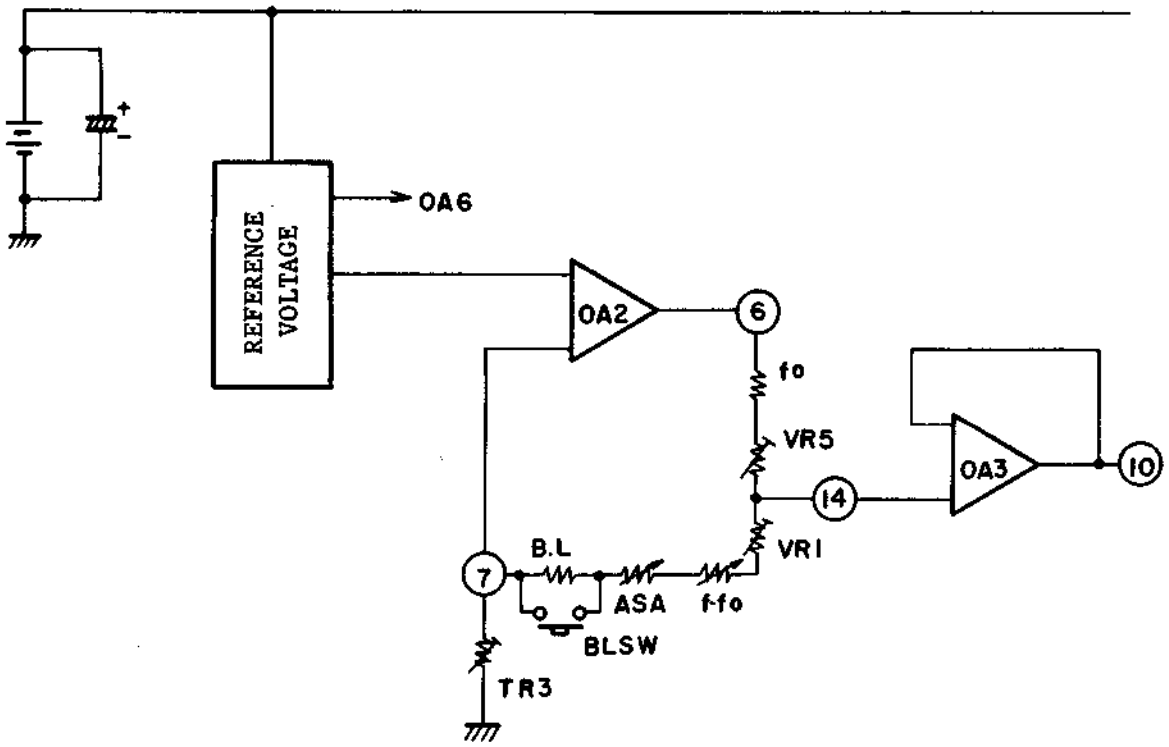
4. Information resistor input

The information resistors for ASA and f-fo are connected directly and they are adjusted by RESISTOR TR3 to shift by 36mV/SV, 36mV/AV. RESISTOR TR3 generates regulated current of 40μA by ASA ↻ adjustment, VARIABLE RESISTOR VR1 is a level shift resistor of shutter speed control on Auto mode, and the voltage of VR1 is added to the information resistor voltage. RESISTOR B.L. is an exposure compensation resistor and turning the exposure compensation switch (BLSW) on makes voltage of 72mV short-circuit to decrease the information resistor voltage by 2EV. The higher ASA value or larger aperture will increase the voltage of Pin (14) . Hence, the higher shutter speed increases the voltage of Pin (14) .

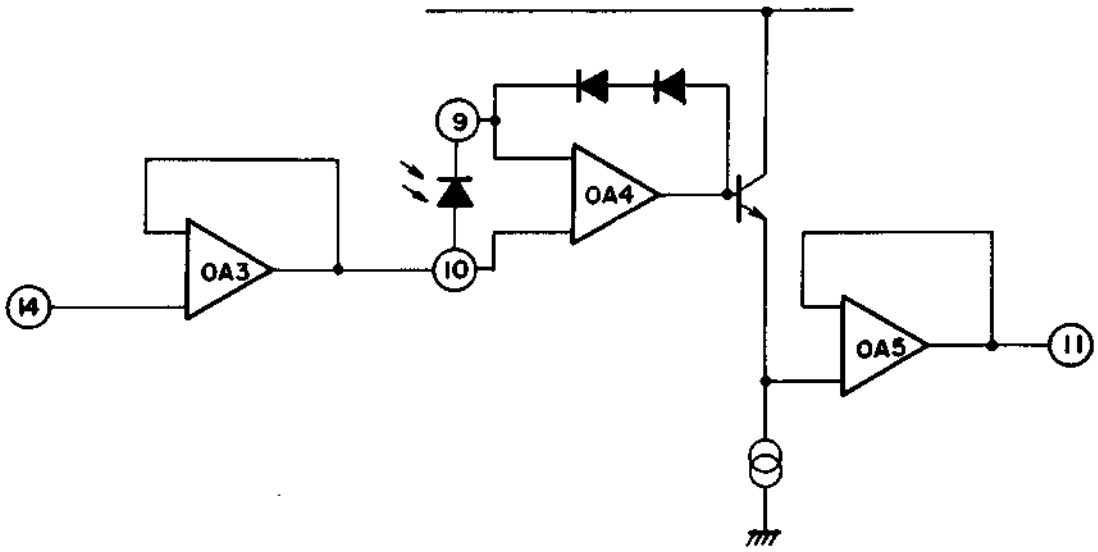
Pin (7) : Reference voltage, approx. 120mV

Pin (14) : Information resistor voltage, approx. 250 - 820mV (BLSW OFF)
The voltage of VARIABLE RESISTOR VR1 varies the information resistor voltage.

AMPLIFIER OA3 is a level shift amplifier and it provides output voltage of approx. 50mV lower than that of Pin (14) with Pin (10) as a reference voltage of the metering amplifier.

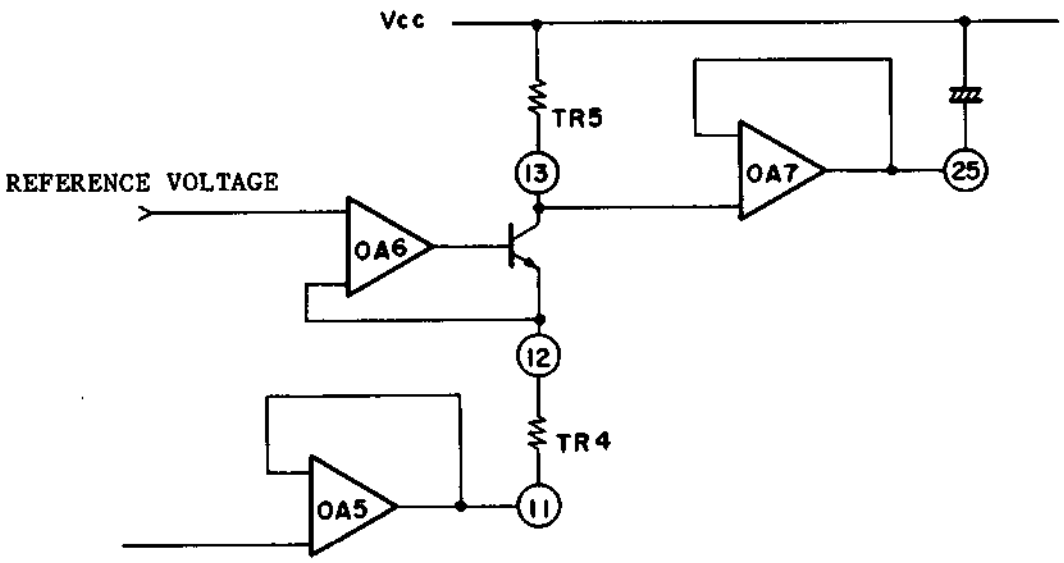


5. Metering



SPD generates current flow in response to the light intensity.
The amount of the current flow are converted into the level of voltage through the logarithmic complesion; the output of COMPARATOR OA4 shifts by 36mV/LV.
The output of COMPARATOR OA4 is connected with the transistor and is provided with AMPLIFIER OA5.
AMPLIFIER OA5 operates as a voltage follower and the output voltage of Pin (11) is equal to that of COMPARATOR OA4.

6. Exposure computation



The output of Pin (11) is determined by adding the voltage of metering output to that of information resistor output.
Thus, shutter speed on Auto mode is calculated by the voltage of Pin (11), and is converted into the power source reference.
The reference voltage is provided with COMPARATOR OA6.
(The voltage between Pin (12) and Pin (11)) = (the voltage between Vcc and Pin (13))

The voltage bewteen Vcc and Pin (13) corresponds to the shutter speed and the higher shutter speed will decrease the voltage.

The voltage of Pin (11) : Approx. 760mV (Central value at 1/30 sec.)

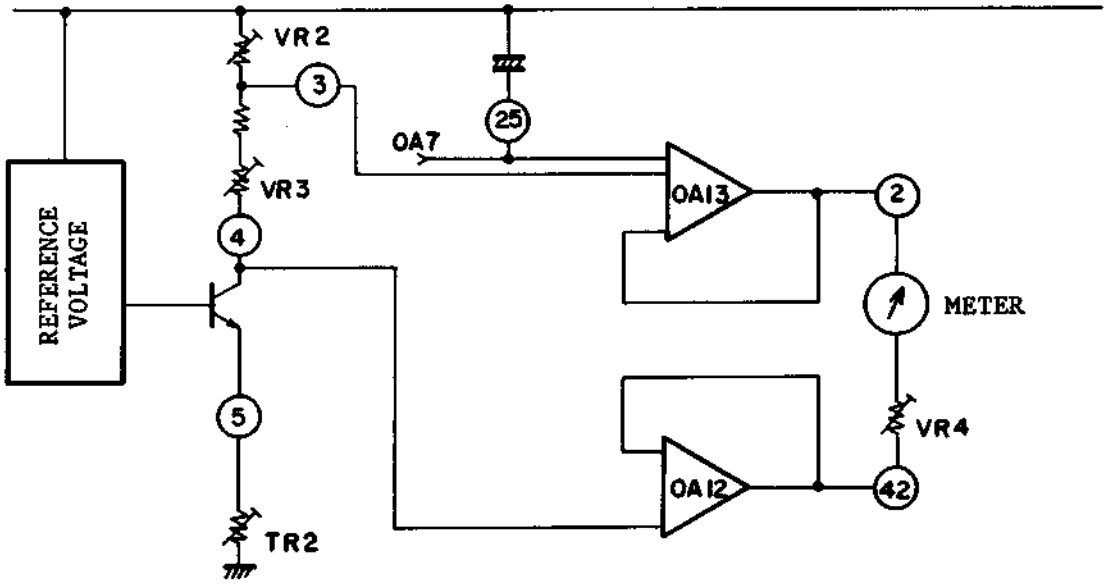
The voltage of Pin (12) : Approx. 1200mV

The voltage of Pin (13) : Approx. 460mV (Central value at 1/30 sec.)

AMPLIFIER OA7 is a memory amplifier to memorize the calculated voltage into MEMORY CONDENSER.
Thus output voltage of Pin (13) is equal to that of Pin (25).

7. Meter

MANUAL VOLTAGE CIRCUIT of the reference voltage circuit is utilized to generate the reference voltage of meter.
That is the voltage of Vcc reference.
VARIABLE RESISTOR VR3 is a level shift adjusting resistor of meter.
The memory voltage of the computation output is provided with COMPARATOR OA13 against the reference of meter.
COMPARATORS OA12 and OA13 are utilized for voltage follower and the level shift circuits of each comparator shift the input voltage by approx. 1V to generate the output voltages (Vcc reference).
The meter is connected with VARIABLE RESISTOR VR4 directly and the output voltages of COMPARATORS OA12 and OA13 are provided with each terminal of meter and VR4.



The output voltage of COMPARATOR OA12 is constant voltage and that of COMPARATOR OA13 shifts by 36mV/EV.
Thus, the meter will operate at the same shifting rate.
The other voltage is inputted from Pin 3 (the voltage at 1/2000 sec. on Manual mode) to COMPARATOR OA13.
Thus, when the voltage at higher shutter speed than 1/2000 sec. is inputted into COMPARATOR OA13, the output voltage of OA13 is limitted to be aorround 1/2000 sec.

The voltage of Pin ④ (from Vcc) : Approx. 700mV (changed by meter shift)

The voltage of Pin ③ (from Vcc) : Approx. 250mV (changed by VR2)

The voltage of Pin ② (from Vcc) : Approx. 1.5V (central value at 1/30 sec.)

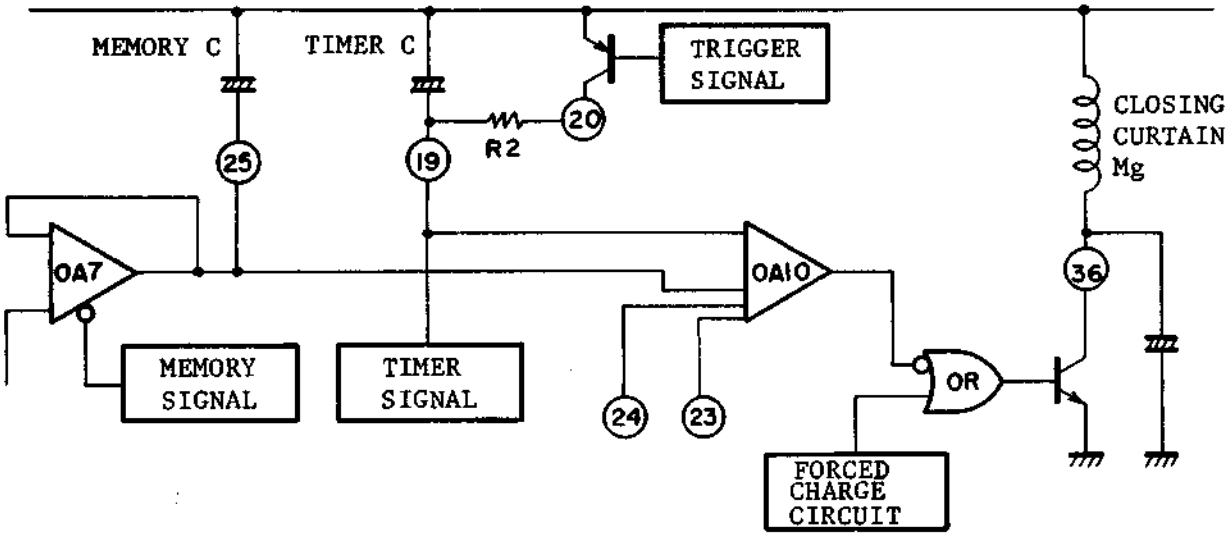
The voltage of Pin ㊷ (from Vcc) : Approx. 1.7V (changed by meter shift)

The voltage between Pin ② and Pin ㊷ : Approx. 200mV

When FCSW is held off on Auto mode, the meter needle moves to indicate C90; the output voltage of COMPARATOR OA13 goes up to approx. 0.6V.
For battery checking, the output voltage of OA13 goes down to GND to cancel the meter needle movement.

8. Shutter speed control on Auto mode

Shutter release turns MSW off before mirror rising and MEMORY SIGNAL goes high. Then AMPLIFIER OA7 turns off to store the voltage of the computation output at MEMORY C.
At the same time, TRIGGER SIGNAL turns low to turn the transistor of Pin ⑳ on and TIMER C is discharged.
COMPARATOR OA10 is a shutter speed control comparator and Auto input, Manual input and Sync input are provided to select the input according to the mode setting.
When the TIMER C is discharged, the voltage of TIMER C is higher than that of MEMORY C and thus the output voltage of COMPARATOR OA10 goes low. This signal is reversed and inputted into OR CIRCUIT.
Then the output voltage of OR CIRCUIT goes high to turn the transistor on and the closing curtain magnet is charged.



Closing curtain Mg charging current = 3(V) ÷ 310 (Ω) = 10 (mA)

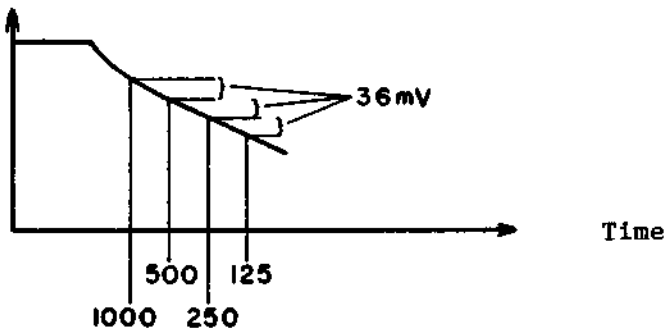
The current consumption is approx. 13mA (3mA for METRING + 10mA for CLOSING CURATING MG

One input terminal of OR CIRCUIT is connected with FORCED CHARGE CIRCUIT. When the voltage of MEMORY C is higher than that of TIMER C, the output voltage of COMPATOR OA10 will turn high. Thus CLOSING CURTAIN MG is charged for the duration from MSW OFF until TSW OFF forcedly by FORCED CHARGE CIRCUIT (refer to TIMING CHART).
The mirror rises to taking position and the opening curtain starts to travel. Turning TSW off makes TRIGGER SIGNAL high and the transistor of Pin (20) turns off.
The charge current flows to TIMER CIRCUIT through TIMER C.
The voltage of Pin (19) starts to decrease and crosses to the voltage of MEMORY C. At the moment, COMPARATOR OA10 reverses and the output becomes low. The transistor turns off and the closing curtain starts to travel. The voltage of Pin (19) decreases by 36mV if the shutter speed slows down twice as much.

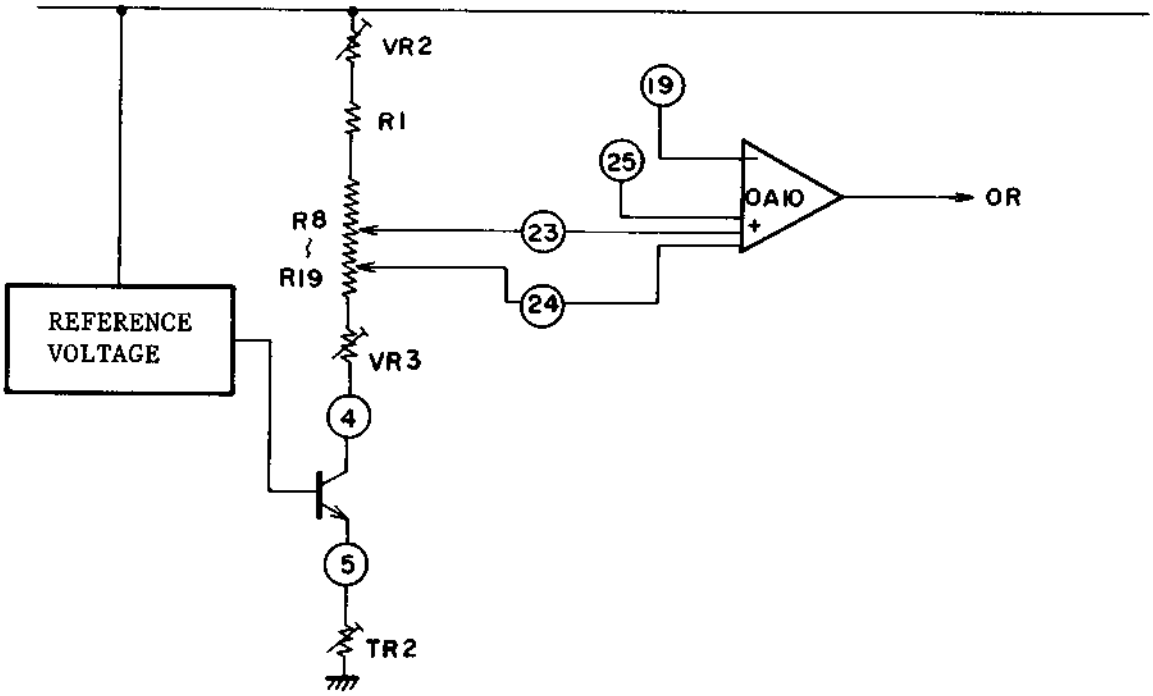
Ex.: The voltage of Pin (19)

The voltage at 1/1000 sec. - that at 1/500 sec. = 36mV

Voltage



9. Shutter speed control on Manual mode



On Manual mode, the input of COMPARATOR OA10 is provided by the voltage of Pin (23) (MANUAL VOLTAGE).
MANUAL VOLTAGE is set according to Vcc reference, and it is adjusted by RESISTOR TR2 to shift by 36mV/EV per one shutter speed.
RESISTOR TR2 is Manual ∫ adjusting resistor and supplies current flow of approx. 40μA to the manual resistor.
On Manual mode, the voltage of Pin (23) is compared with that of Pin (11) at COMPARATOR OA10.

The voltage of Pin (5) : Approx. 540mV

The voltage of Pin (23) : Approx. 460mV (from Vcc)

10. Shutter speed control on Speedlight mode

Turning the power switch of the speedlight(the SB-19 etc.) on supplies current flow to the camera.
The output of COMPARATOR OA10 sets the input of Pin (24) .
Pin (24) is the output at 1/90 sec. on Manual mode.
On Auto mode, the shutter speed is automatically set to 1/90 sec..
On Manual mode, COMPARATOR OA10 sets the inputs of both Pin (23) and Pin (24) . The input of Pin (24) is selected when the shutter dial is set between 1/1000 and 1/125. The input of Pin (23) is selected when the shutter dial is set at 1/60 or lower.
When FCSW is off on Auto mode, the shutter speed is automatically set to 1/90 sec.

The voltage of Pin (24) : Approx. 410mV (from Vcc)

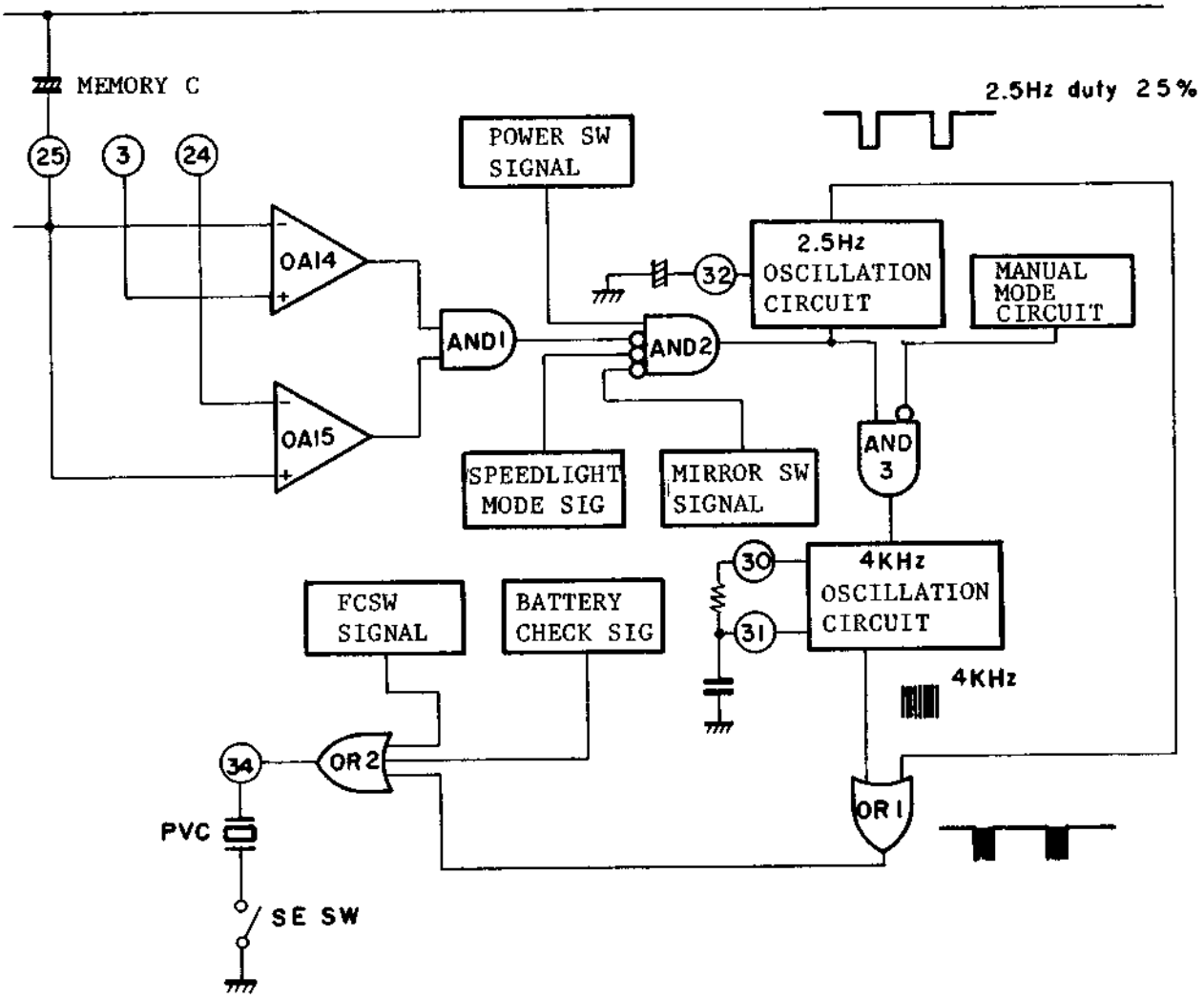
Mode/set speed	Shutter speed delivery
Auto	1/90
Manual 1/1000 - 1/125	1/90
Manual 1/60 - 1	As set

11. Auto/Manual mode detection

Auto/Manual mode detecion is executed by Pin 23.
Pin (23) generates the voltage which is 1V or higher than GND on Manual mode and the voltage varies along the shutter speed.
On Auto mode, the voltage of Pin (23) is equal to GND.
The voltage difference btween Manual and Auto medes is detected by Pin (23), and Pin (23) generates MODE SELECTION SIGNAL.

12. Audible warning circuit

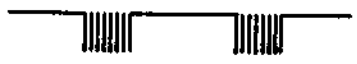
Set the shutter dial to ((▶ and depress the shutter release button halfway (Power SW ON). The audible warning sounds if the meter needle moves to the overexposure warning zone or the picture blur warning zone.



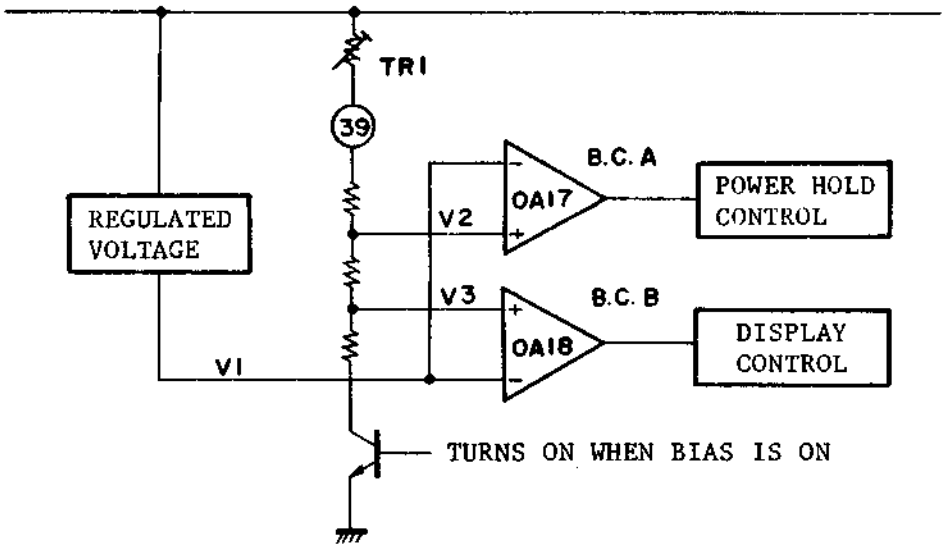
The sound interval of the audible warning is 2.5Hz DUTY 25% and the sound becomes 4kHz.
The overexposure warning zone is detected by COMPARATOR OA14.
The voltage of Pin (3) (the voltage at 1/2000 sec.) is inputted into the positive (+) input terminal of OA14.
The memory voltage (the computation output voltage) is inputted into the negative (-) input terminal of OA14.
The off set voltage of 36mV is set between the positive and negative input terminals of OA14.

When the negative input voltage becomes higher than the positive input voltage - 36mV, the output of COMPARATOR OA14 is reversed from high to low.
Thus, the reference voltage of the overexposure warning is the voltage at 1/2000 sec. - 36mV; the voltage at 1/1000 sec...
The overexposure warning is activated when the memory voltage becomes higher than the voltage at 1/1000 sec..
The picture blur warning zone is detected by COMPARATOR OA15.
The voltage of Pin ㉔ (the voltage at 1/90 sec.) is inputted into the negative input terminal of OA15. The memory voltage (the computation output voltage) is inputted into the positive input terminal of OA15.
The off set voltage of 66mV is set between the positive and negative input terminals of OA15.
When the positive input voltage becomes lower than the negative input voltage - 66mV, the output of COMPARATOR OA15 is reversed from high to low. Thus, the reference voltage of the picture blur warning is the voltage at 1/90 sec. - 66mV; the voltage at 1/25sec.
The picture blur warning is activated when the memory voltage becomes lower than the voltage at 1/25 sec..

The output of COMPARATORS OA14 and OA15 are inputted into AND1 CIRCUIT.
The output of AND1 CIRCUIT turns low when either COMPARATOR OA14 or COMPARATOR OA15 detects the warning zone.
AND2 CIRCUIT controls 2.5Hz OSCILLATION CIRCUIT for intermittent oscillation of the audible warning.
Turning the output of AND2 CIRCUIT high activates 2.5Hz OSCILLATION CIRCUIT. The outputs of the power switch signal, speedlight mode signal and mirror switch signal are inputted into AND2 CIRCUIT.
Turning the power switch on makes the power switch signal high.
Turning the power switch of the speedlight on makes the speedlight mode signal high. Turning the mirror switch off makes the mirror switch signal high. Thus, when the power switch and mirror switch are on, and the sppedlight mode signal and the output of AND1 CIRCUIT are low, the output of AND2 CIRCUIT turns high to activate 2.5Hz OSCILLATION CIRCUIT. The output of AND2 CIRCUIT is inputted into AND3 CIRCUIT together with MANUAL MODE CIRCUIT SIGNAL.
AND3 CIRCUIT controls 4kHz OSCILLATION CIRCUIT.
On Auto mode, the output of MANUAL MODE CIRCUIT is held low and 4kHz OSCILLATION CIRCUIT is activated only when 2.5Hz OSCILLATION CIRCUIT is in operation.
OR1 CIRCUIT puts 2.5Hz together 4kHz and inputs the two outputs into OR2 CIRCUIT.
FCSW SIGNAL and BATTERY CHECK SIGNAL are also inputted into OR2 CIRCUIT.
Turning FCSW off makes FCSW SIGNAL high and BATTERY CHECK SIGNAL turns high when the voltage bocomes lower than the battery check voltage.
Thus, OR2 CIRCUIT outputs the voltage only when both FCSW SIGNAL and BATTERY CHECK SIGNAL are held low.
Pin ㉞ outputs the composite wave of 2.5Hz and 4kHz. The warning buzzer sounds by 2.5Hz DUTY 25%.
Setting the shutter dial to ◆ turns SILENCER SW on and to A turns it off. Refer to TIMING CHART.

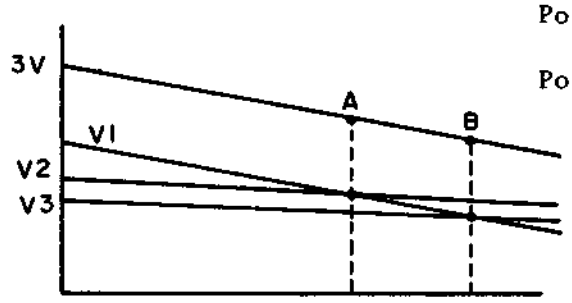
The output of Pin ㉞ 

13. Battery check circuit

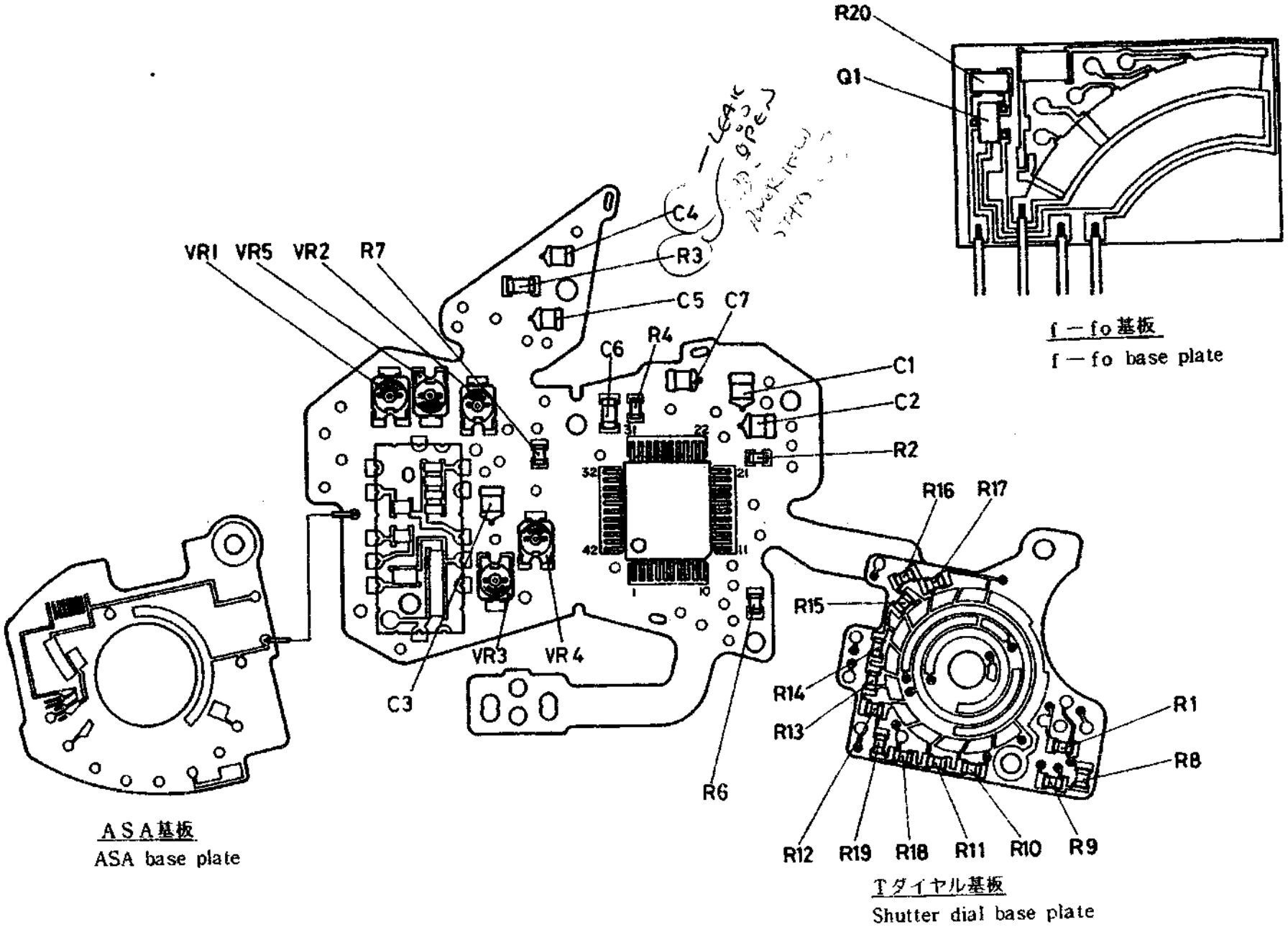


Point A: approx. 2.5V

Point B: approx. 2.38V



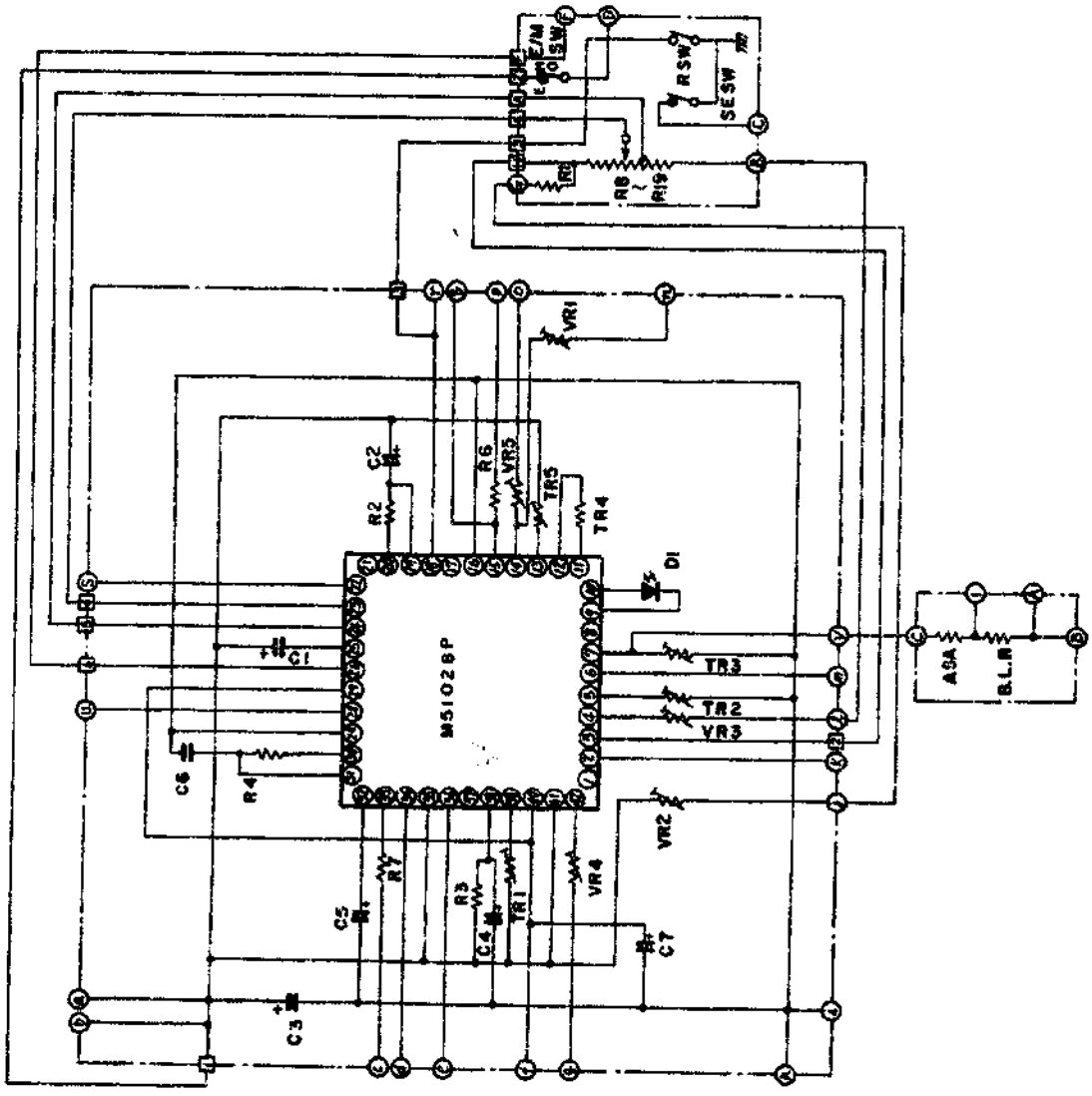
The voltage V1 is higher than the voltages V2 and V3 when the battery voltage is 3V. The outputs of COMPARATORS OA17 and OA18 are low.
When the battery voltage goes down to Point A, the voltage V1 is lower than V2, but higher than V3. Then the output of COMPARATOR OA17 (B.C.A) only turns high.
The circuit is held on while the shutter release button is depressed halfway; it will be no longer on when finger is removed from the button. Also in this condition, shutter will operate normally.
When the voltage goes down to Point B, the voltage V1 is lower than the voltages V2 and V3. The output of COMPARATOR OA18 (B.C.B) also tunrs high. In this condition, the meter, LEDs and audible warning will not operate, but the shutter release is not locked.
RESISTOR TR1 has been made to fit for individual circuitry.



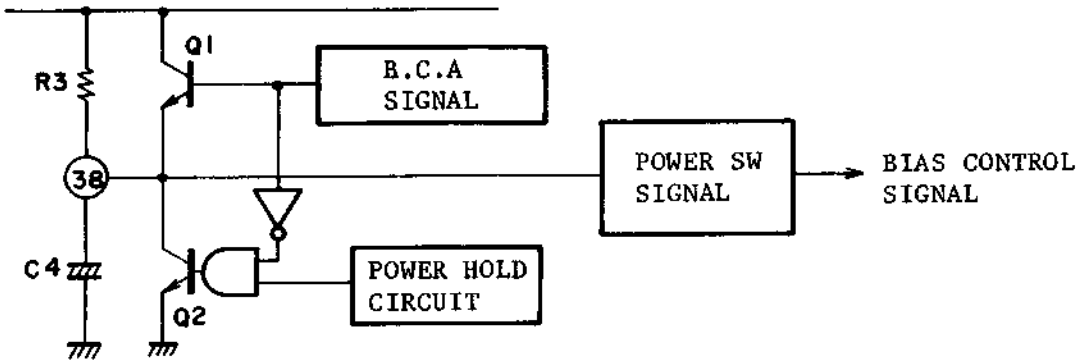
f－fo基板
f－fo base plate

ASA基板
ASA base plate

Tダイヤル基板
Shutter dial base plate


M51028P
VR1
VR2
VR3
VR4
VR5
TR1
TR2
TR3
TR4
TR5
R1
R2
R3
R4
R5
R6
R8 ~ R19
C1
C2
C3
C4
C5
C6
C7
D1
RSW
SESW
ASA
B.L.R

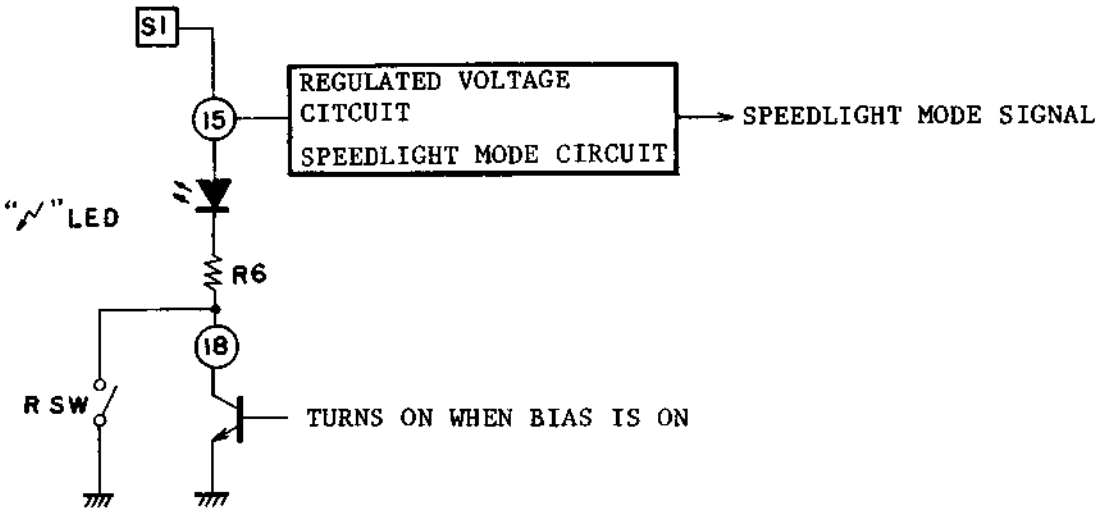
14. Power hold circuit



POWER HOLD CIRCUIT is an analog type timer circuit.
Turning POWER SW on makes POWER SW SIGNAL high and BATTERY CHECK (B.C.A) SIGNAL low to turn the transistor of POWER HOLD CIRCUIT on. Then, CONDENSER C4 is discharged.
Turning POWER SW off turns TRANSISTOR Q2 off and CONDENSER C4 is charged by RESISTOR R3.
The timing of the power hold is controlled by the input voltage level of POWER HOLD CIRCUIT. Thus, when the charged voltage reaches the level, the power hold will be finished.
BATTERY CHECK (B.C.A) SIGNAL turns high when the battery voltage goes down. TRANSISTOR Q2 turns off and TRANSISTOR Q1 turns on to charge CONDENSER C4. Thus, this condition is equal to the finish of the power hold.

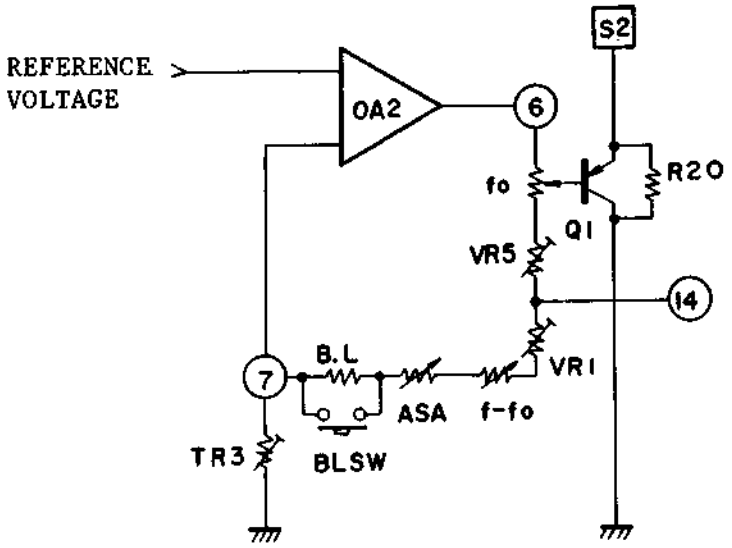
Reference level of Pin (38) : Approx. 1V

15. Ready-light circuit



SPEEDLIGHT MODE CURRENT (approx. 40μA) flows to Pin (15) when the speedlight attached is switched on and SPEEDLIGHT MODE CIRCUIT is activated. Thus, SPEEDLIGHT MODE SIGNAL turns high.
At this time, REGULATED VOLTAGE CIRCUIT is not activated and the voltage of Pin (15) becomes approx. 1.6V.
When the speedlight is charged, READY-LIGHT CURRENT (approx. 5mA) flows to Pin (15). REGULATED VOLTAGE CIRCUIT is activated and the voltage of Pin (15) becomes the regulated voltage of approx. 3V.
If the level of Pin (18) is low when POWER SW is on or POWER HOLD CIRCUIT is in operation, the current which is controlled by RESISTOR R6 flows to Ready-light LED.
Thus, Ready-light LED lights up.
When the power hold is finished or the output of COMPARATOR OA18 (B.C.B) is high, Ready-light LED does not light up although the current is supplied.
READY-LIGHT SW turns on when setting the shutter speed dial to B or M90. In this condidition Ready-light LED is lighted up by only the current flow from the speedlight.

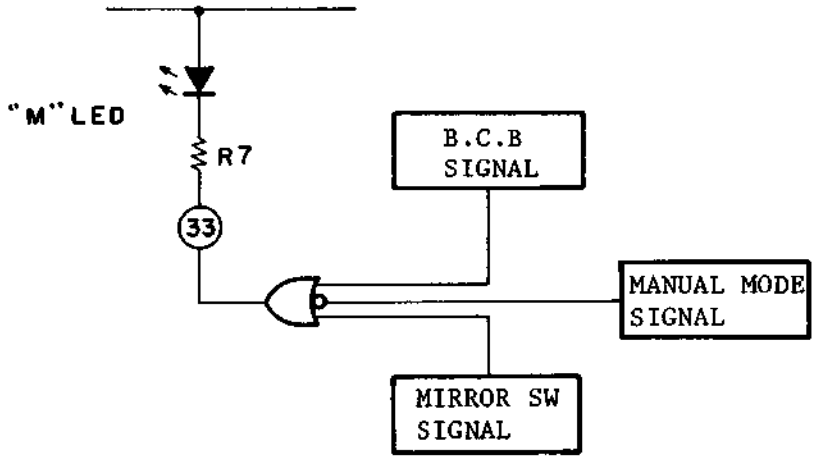
16. Flash output control circuit



The flash output level of the SB-19 or SB-E is controlled according to the ASA film speed and aperture settings.
In order to inform the speedlight of the aperture value, Lens speed information is required.
Lens speed information resistor is also connected with other information resistors directlly and it will shift by 36mV/AV.
When the regulated current (20μA) of the speedlight is supplied to TERMINAL S2 (Contact for the SB-19 or SB-E), the voltage of the information resistor is added to the forward direction voltage of TRANSISTOR Q1 and the voltage is transmitted to the speedlight.
VARIABLE RESISTOR VR5 is the fo level shift adjusting resistor.

The voltage of TERMINAL S2: 1317mV (central value)
ASA 100, F5.6 (50mm F1.8 lens)

17. Manual mode indication LED



On Manual mode, the red LED "M" lights up.
When MIRROR SW is off or BATTERY CHECK (B.C.B) SIGNAL is high, the red LED "M" is turned off.

The voltage of Pin (33) : Approx. 0V (LED lights)

18. Mirror switch, Trigger switch

The voltage of Pin (28) : 0V (MIRROR SW ON)

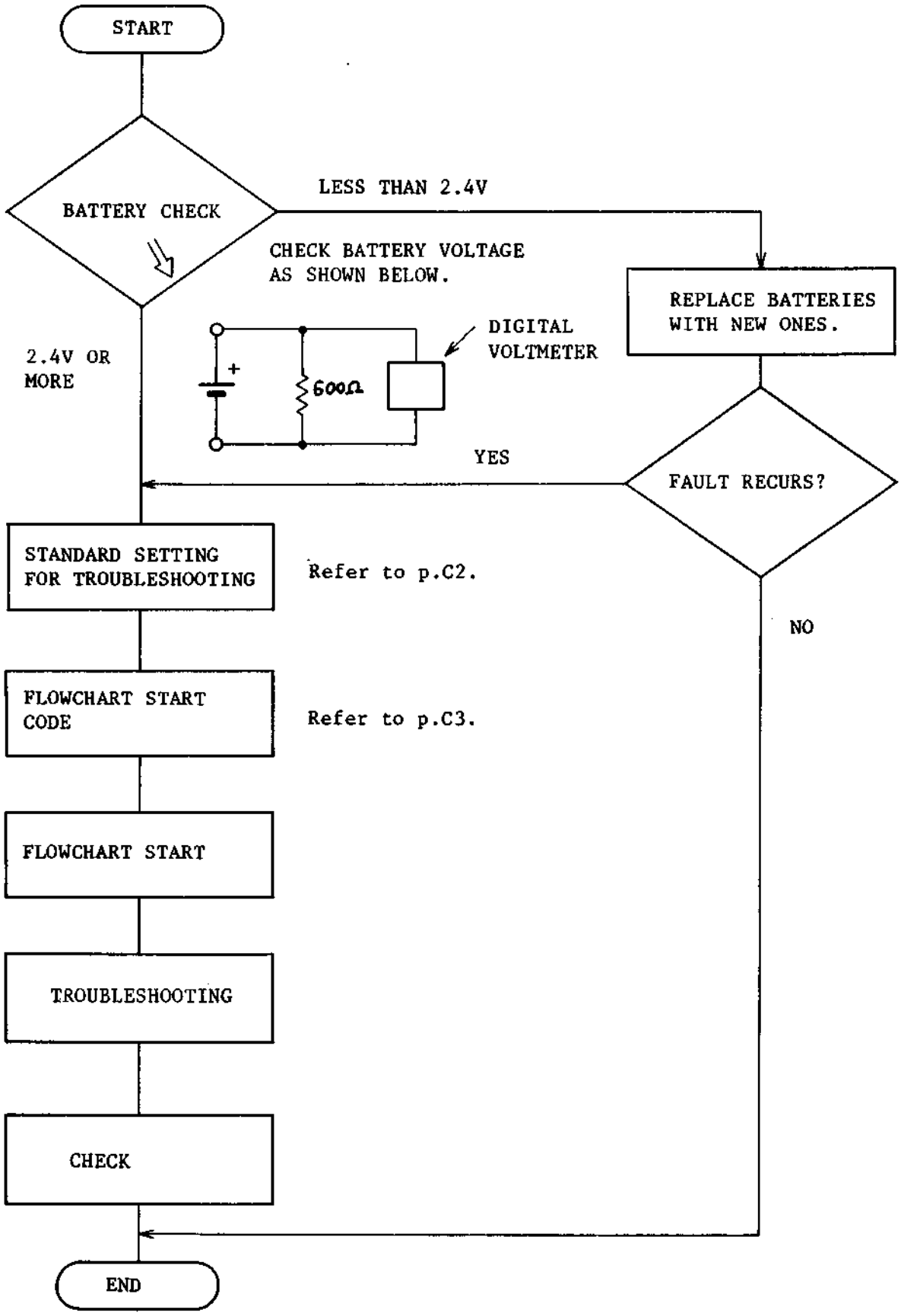
Approx. 0.6V (MIRROR SW OFF)

The voltage of Pin (22) : 0V (TRIGGER SW ON)

Approx. 1V (TRIGGER SW OFF)

TROUBLESHOOTING FLOWCHART

Troubleshooting procedure



Precautions

1) Standard setting for troubleshooting

Shutter dial	1/30	f/stop	F4
ASA dial	100	Brightness value	LV9
Frame counter	1 or more	Shutter release button	Depressed halfway
Film-advance lever	Condition after film-advancing	Exposure compensation button	Not to be depressed

2) Switches

Name	Function	Location
Frame counter sw (FCSW)	To release shutter at 1/90 sec. before frame counter reaches 1 on Auto mode	Film-advance base unit
Power sw (HSW)	Metering, Audible warning, Power hold	Shutter release button
Mirror sw (MSW)	To charge magnet, memorize metering and hold meter	Front plate
Trigger sw (TSW)	Time generating	Shutter
Sync sw	To fire flash (X contact)	Shutter
Closing curtain sw	To make motor drive advance the film	Shutter
MD sw	To make motor drive advance the film	MD coupling
Exposure compensation sw (B.L. SW)	To compensate exposure	ASA base plate

3) Abbreviations

TA	Shutter speeds delivery on Auto mode *1	M	Main FPC *2
TM	Shutter speeds delivery on Manual mode *1	T	Shutter dial base plate *2
IA	Current flow of power source on Auto mode	A	ASA base plate *2
IM	Current flow of power source on Manual mode	Highest critical speed	Shutter speeds delivery is faultily high-speed

*1: Shutter tester should be used for measurement.

*2: Ex. M ② : CHECK LAND ② of Main FPC
T ② : CHECK LAND ② of Shutter dial base plate
A ② : CHECK LAND ② of ASA base plate

Refer check lands to p.E6 - E7.

Troubleshooting start code

Check or measure the follwing items respectively in accordance with the chart below.

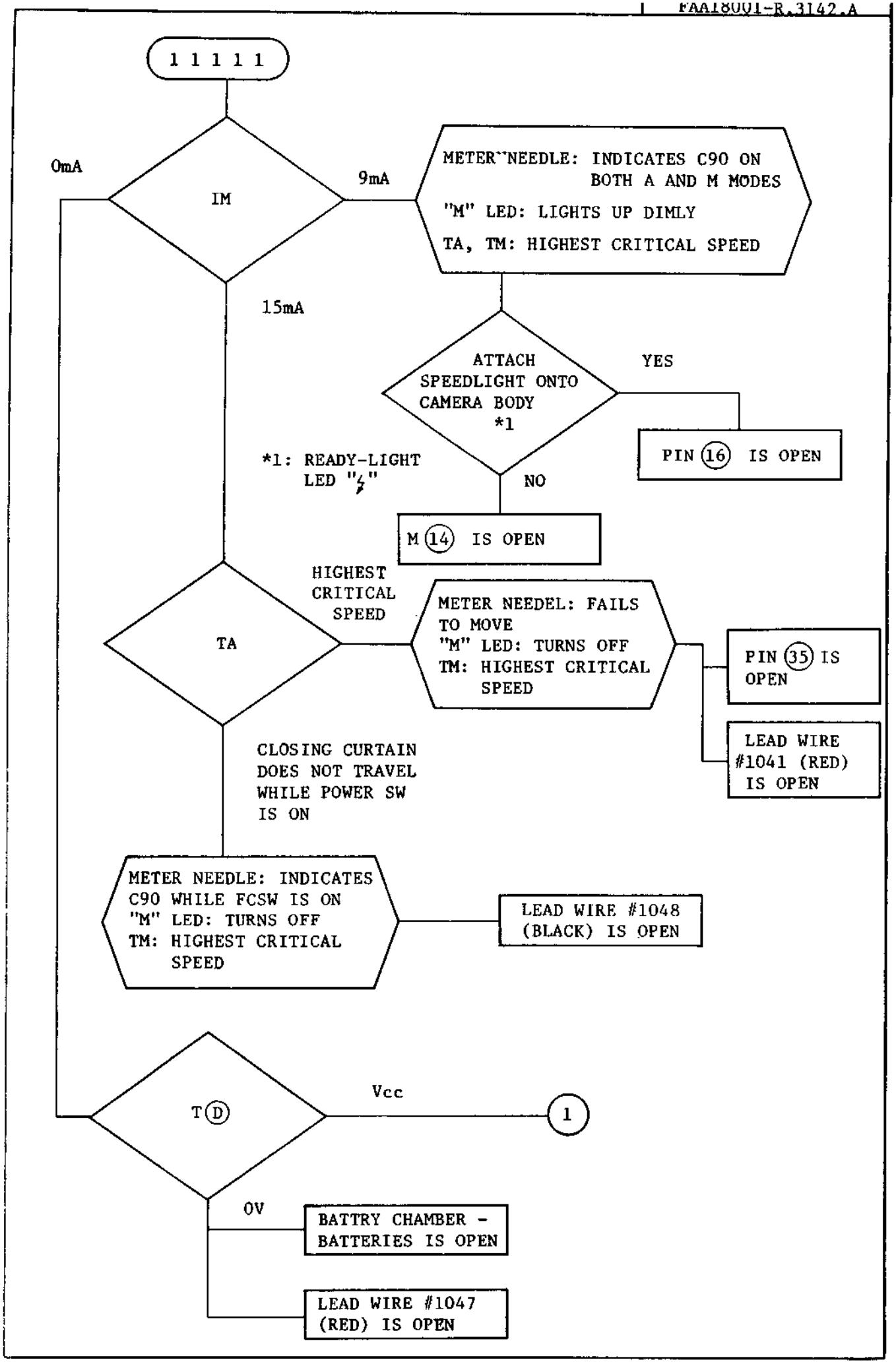
Setting: Standard setting

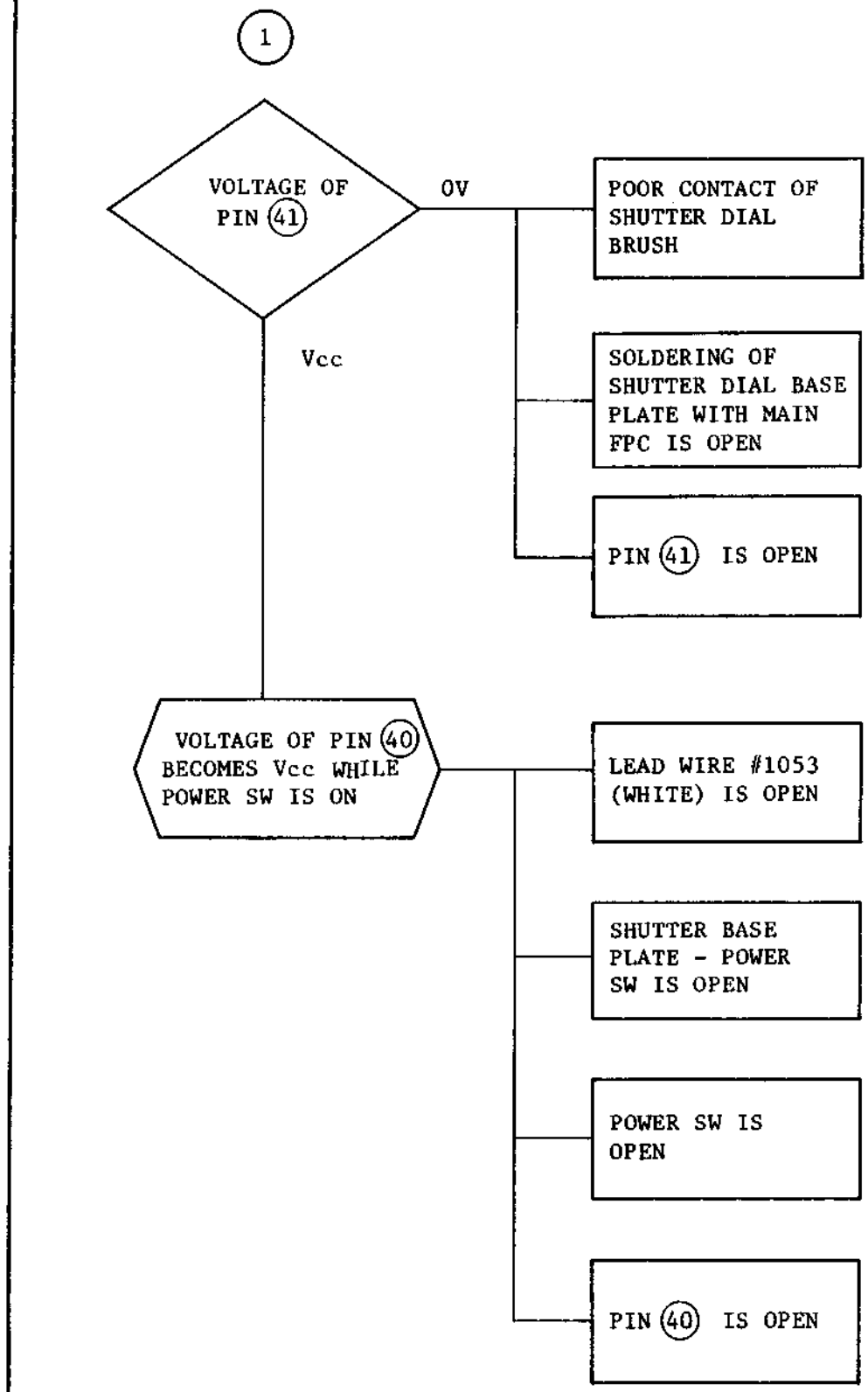
Item	Measurement/check	Normal condition
IM	Measure current flow of power source when depressing shutter release button halfway	Approx. 4mA
Meter needle	Check if meter needle positions correctly.	1/30
"M" LED	Check if Manual mode indication LED "M" lights up on Manual mode.	Lighting
TM	Release shutter to measure shutter speed on Manual mode	1/30 sec.
TA	Release shutter to measure shutter speed on Auto mode	1/30 sec.

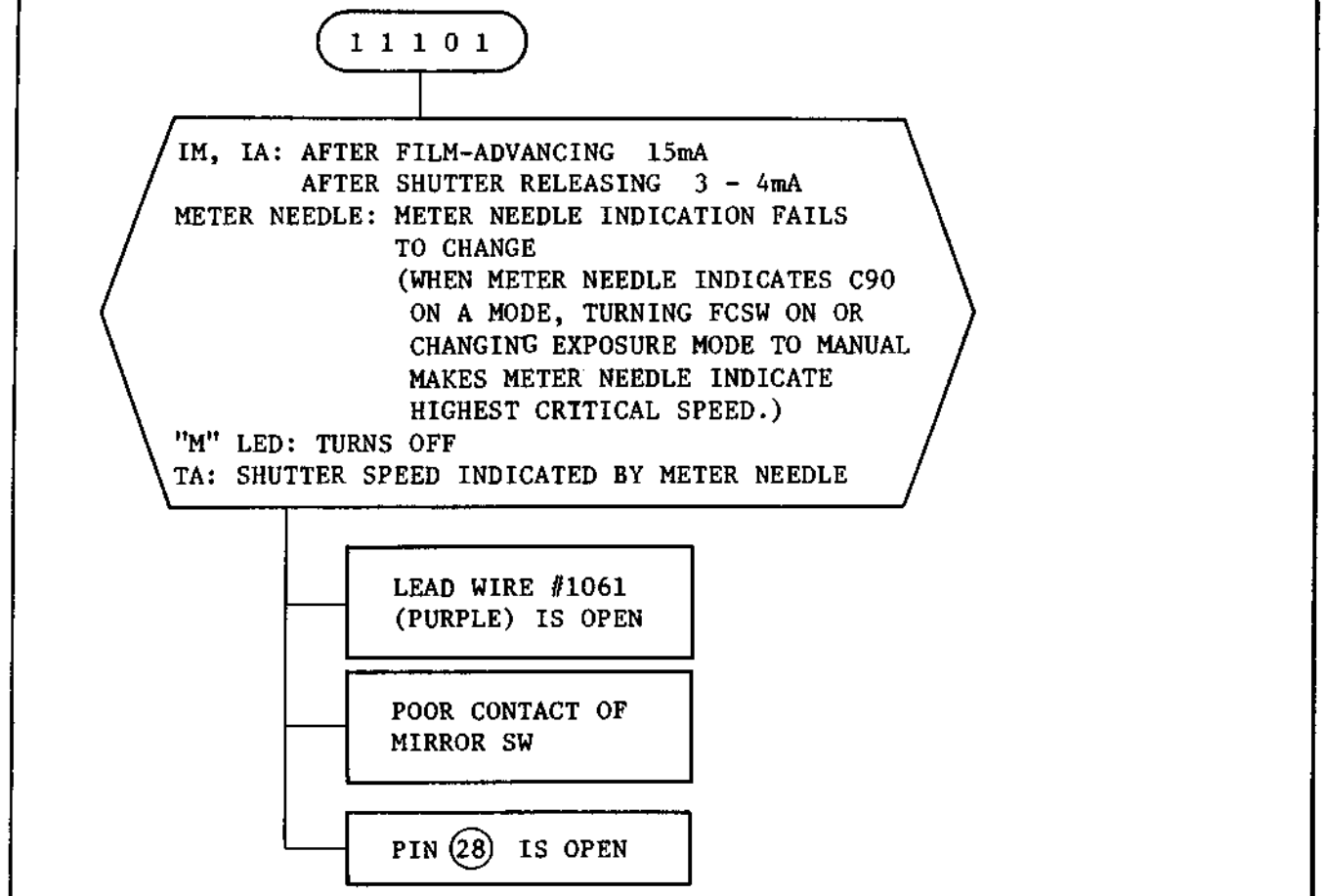
To make Flowchart start codes, put "0" (when the item is normal) or "1" (when the item is abnormal) to the place specified below respectively.

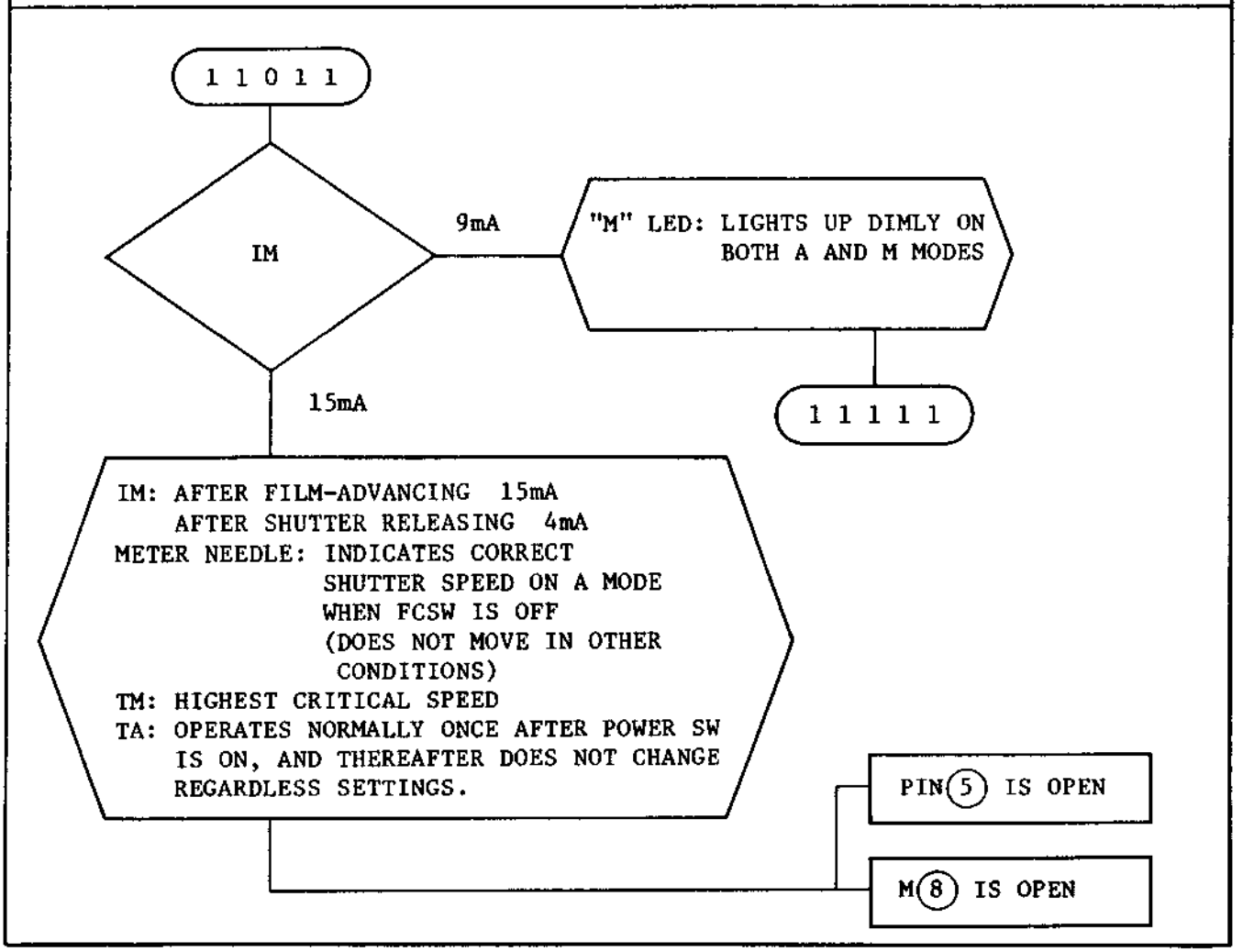
TM	METER NEEDLE	"M" LED	TM	TA

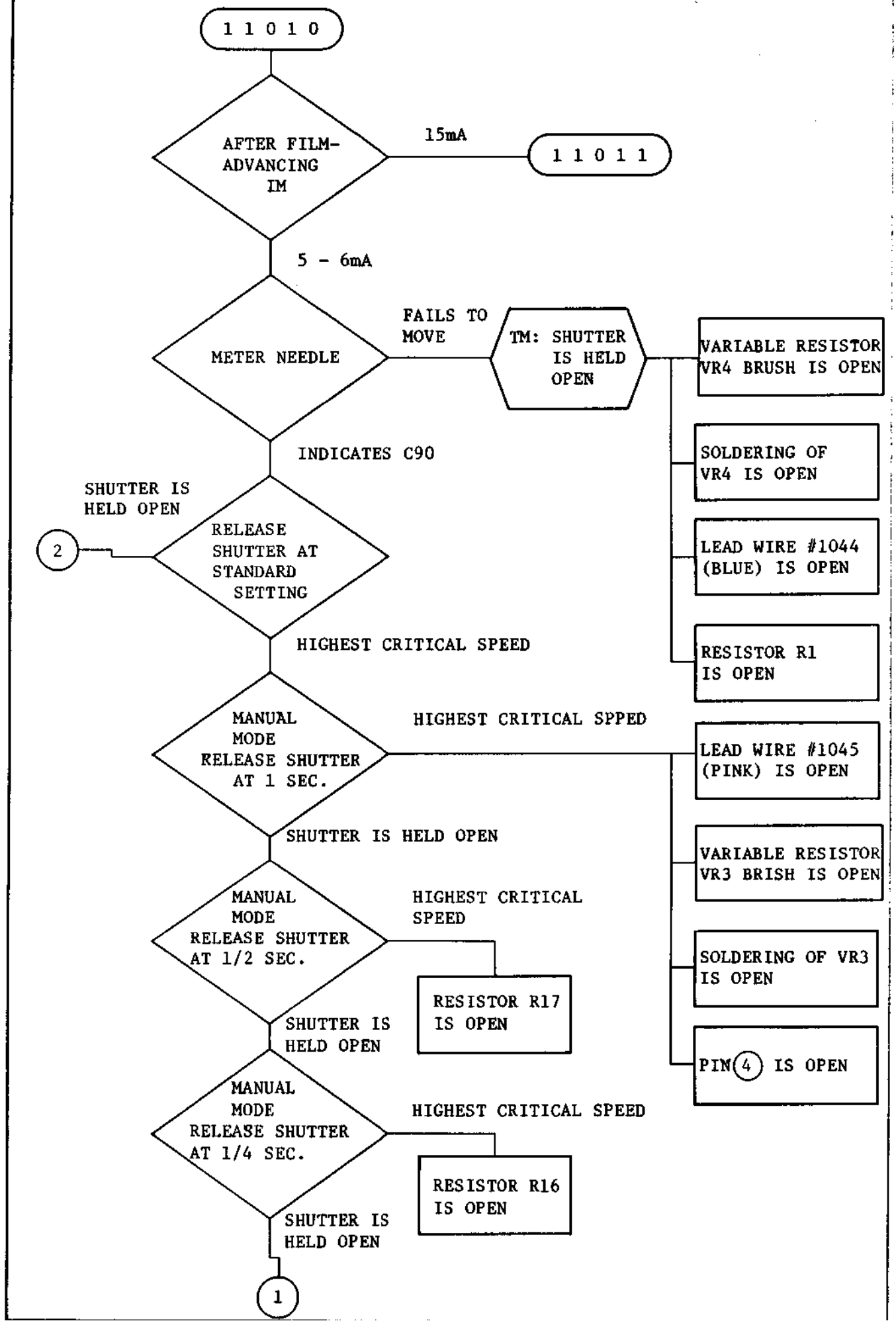
Ex.: When all items are abnormal, the flowchart start code becomes " 1 1 1 1 1 ".

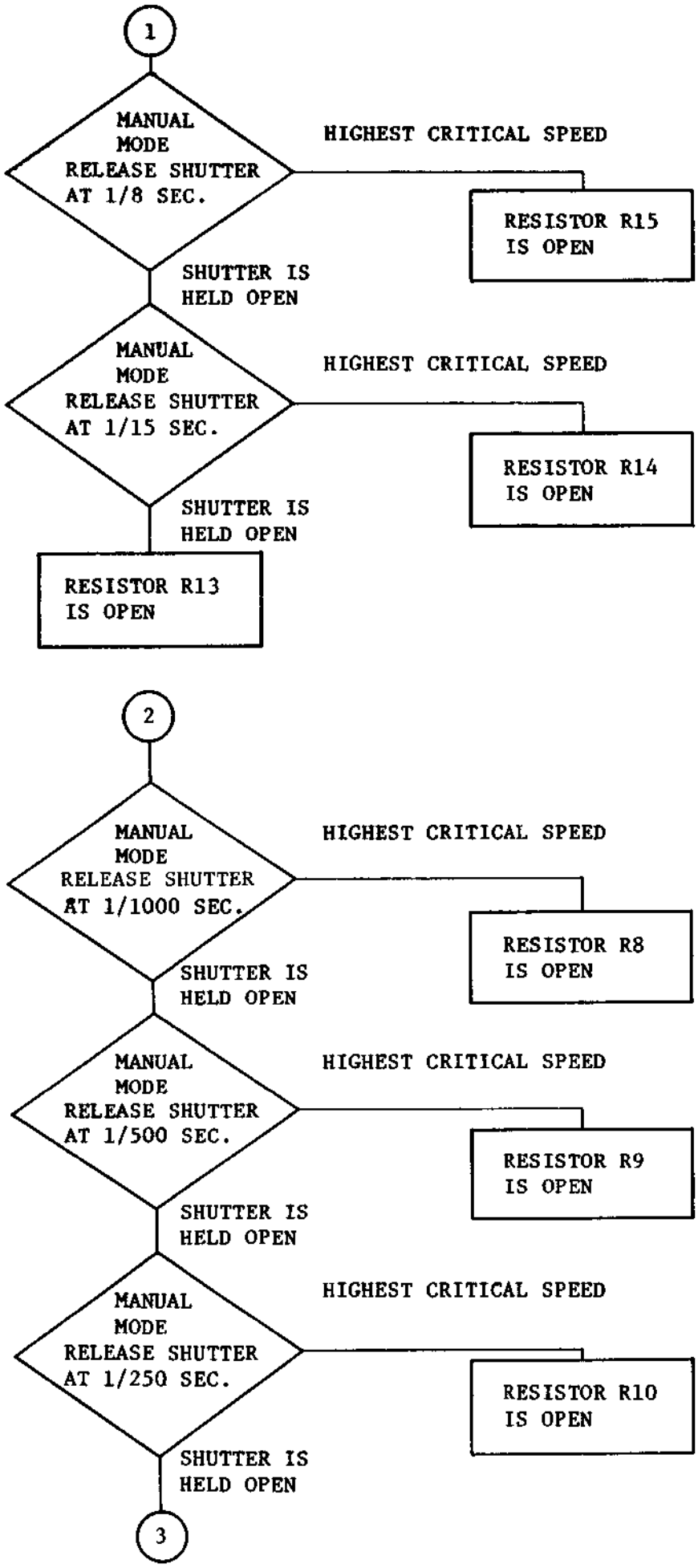

1 1 1 1 1
IM
0mA
9mA
METER NEEDLE: INDICATES C90 ON BOTH A AND M MODES
"M" LED: LIGHTS UP DIMLY
TA, TM: HIGHEST CRITICAL SPEED
15mA
ATTACH SPEEDLIGHT ONTO CAMERA BODY *1
YES
PIN (16) IS OPEN
*1: READY-LIGHT LED "⚡"
NO
M (14) IS OPEN
HIGHEST CRITICAL SPEED
TA
METER NEEDEL: FAILS TO MOVE
"M" LED: TURNS OFF
TM: HIGHEST CRITICAL SPEED
PIN (35) IS OPEN
LEAD WIRE #1041 (RED) IS OPEN
CLOSING CURTAIN DOES NOT TRAVEL WHILE POWER SW IS ON
METER NEEDLE: INDICATES C90 WHILE FCSW IS ON
"M" LED: TURNS OFF
TM: HIGHEST CRITICAL SPEED
LEAD WIRE #1048 (BLACK) IS OPEN
T (D)
Vcc
1
0V
BATTRY CHAMBER - BATTERIES IS OPEN
LEAD WIRE #1047 (RED) IS OPEN

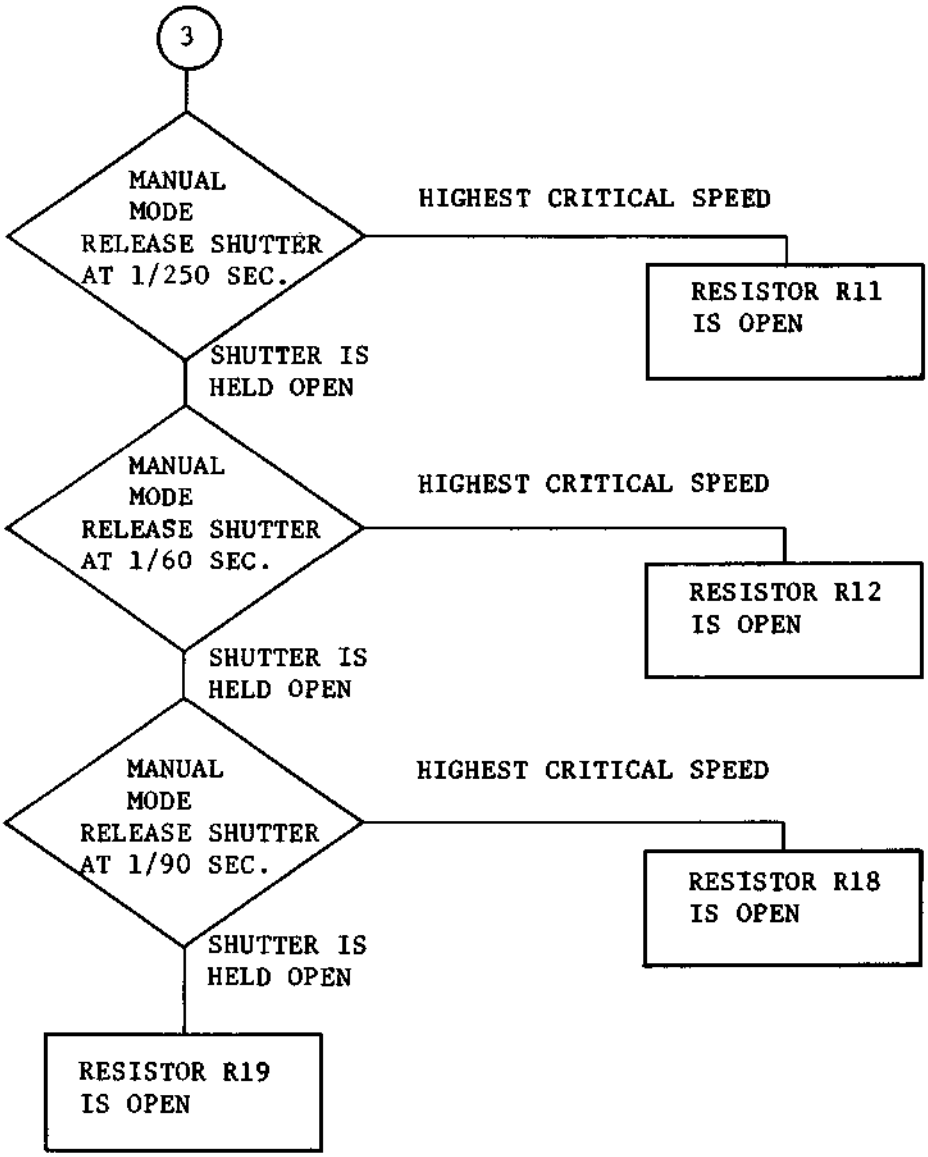

1
VOLTAGE OF PIN 41
0V
POOR CONTACT OF SHUTTER DIAL BRUSH
SOLDERING OF SHUTTER DIAL BASE PLATE WITH MAIN FPC IS OPEN
PIN 41 IS OPEN
Vcc
VOLTAGE OF PIN 40 BECOMES Vcc WHILE POWER SW IS ON
LEAD WIRE #1053 (WHITE) IS OPEN
SHUTTER BASE PLATE - POWER SW IS OPEN
POWER SW IS OPEN
PIN 40 IS OPEN

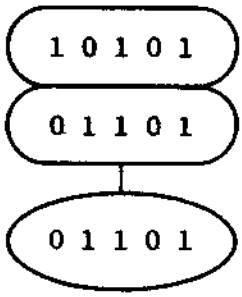

1 1 1 0 1
IM, IA: AFTER FILM-ADVANCING 15mA
AFTER SHUTTER RELEASING 3 - 4mA
METER NEEDLE: METER NEEDLE INDICATION FAILS TO CHANGE
(WHEN METER NEEDLE INDICATES C90 ON A MODE, TURNING FCSW ON OR CHANGING EXPOSURE MODE TO MANUAL MAKES METER NEEDLE INDICATE HIGHEST CRITICAL SPEED.)
"M" LED: TURNS OFF
TA: SHUTTER SPEED INDICATED BY METER NEEDLE
LEAD WIRE #1061 (PURPLE) IS OPEN
POOR CONTACT OF MIRROR SW
PIN (28) IS OPEN

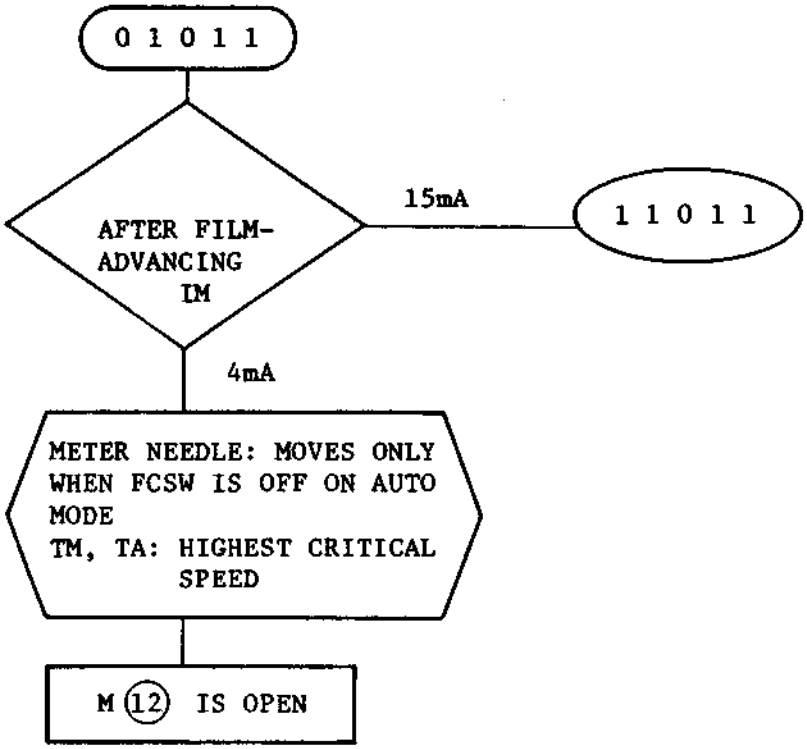

1 1 0 1 1
IM
9mA
"M" LED: LIGHTS UP DIMLY ON BOTH A AND M MODES
1 1 1 1 1
15mA
IM: AFTER FILM-ADVANCING 15mA
AFTER SHUTTER RELEASING 4mA
METER NEEDLE: INDICATES CORRECT SHUTTER SPEED ON A MODE WHEN FCSW IS OFF
(DOES NOT MOVE IN OTHER CONDITIONS)
TM: HIGHEST CRITICAL SPEED
TA: OPERATES NORMALLY ONCE AFTER POWER SW IS ON, AND THEREAFTER DOES NOT CHANGE REGARDLESS SETTINGS.
PIN (5) IS OPEN
M (8) IS OPEN

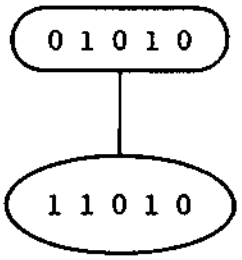

1 1 0 1 0
AFTER FILM-ADVANCING IM
15mA
1 1 0 1 1
5 - 6mA
METER NEEDLE
FAILS TO MOVE
TM: SHUTTER IS HELD OPEN
VARIABLE RESISTOR VR4 BRUSH IS OPEN
SOLDERING OF VR4 IS OPEN
LEAD WIRE #1044 (BLUE) IS OPEN
RESISTOR R1 IS OPEN
INDICATES C90
SHUTTER IS HELD OPEN
2
RELEASE SHUTTER AT STANDARD SETTING
HIGHEST CRITICAL SPEED
MANUAL MODE RELEASE SHUTTER AT 1 SEC.
HIGHEST CRITICAL SPPED
LEAD WIRE #1045 (PINK) IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/2 SEC.
HIGHEST CRITICAL SPEED
VARIABLE RESISTOR VR3 BRISH IS OPEN
SOLDERING OF VR3 IS OPEN
RESISTOR R17 IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/4 SEC.
HIGHEST CRITICAL SPEED
PIN 4 IS OPEN
RESISTOR R16 IS OPEN
SHUTTER IS HELD OPEN
1

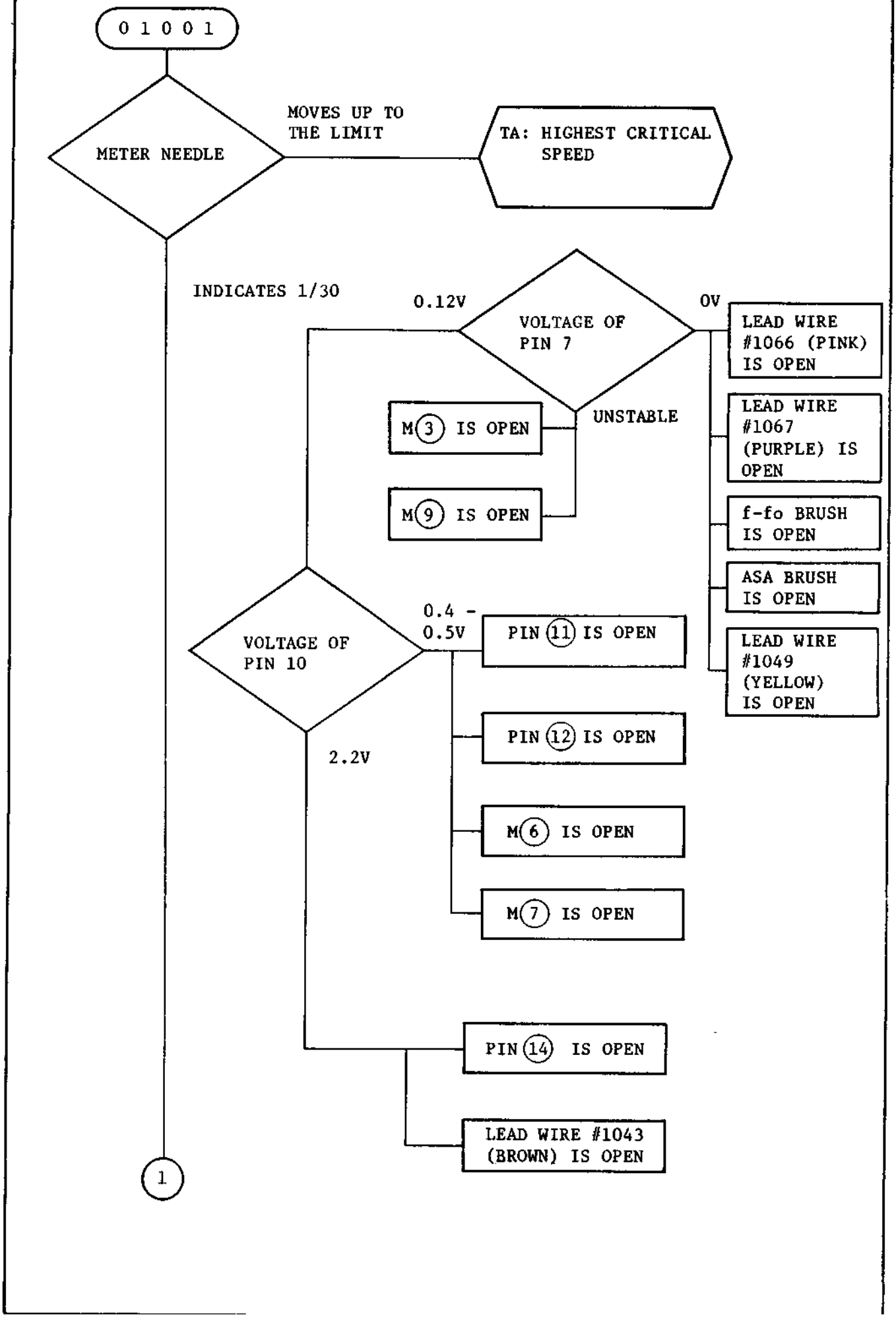

1
MANUAL MODE RELEASE SHUTTER AT 1/8 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R15 IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/15 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R14 IS OPEN
SHUTTER IS HELD OPEN
RESISTOR R13 IS OPEN
2
MANUAL MODE RELEASE SHUTTER AT 1/1000 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R8 IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/500 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R9 IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/250 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R10 IS OPEN
SHUTTER IS HELD OPEN
3

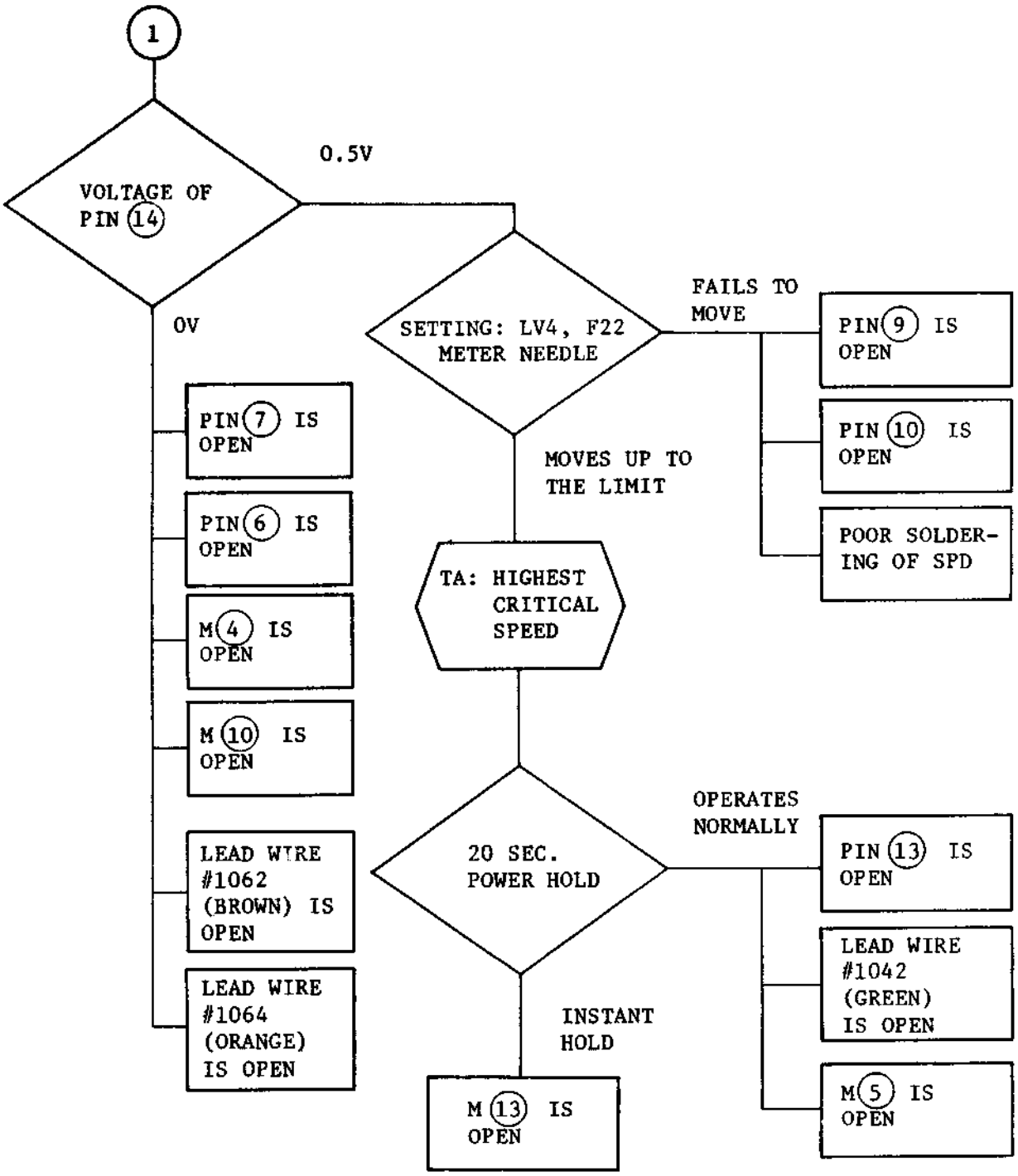

3
MANUAL MODE RELEASE SHUTTER AT 1/250 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R11 IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/60 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R12 IS OPEN
SHUTTER IS HELD OPEN
MANUAL MODE RELEASE SHUTTER AT 1/90 SEC.
HIGHEST CRITICAL SPEED
RESISTOR R18 IS OPEN
SHUTTER IS HELD OPEN
RESISTOR R19 IS OPEN

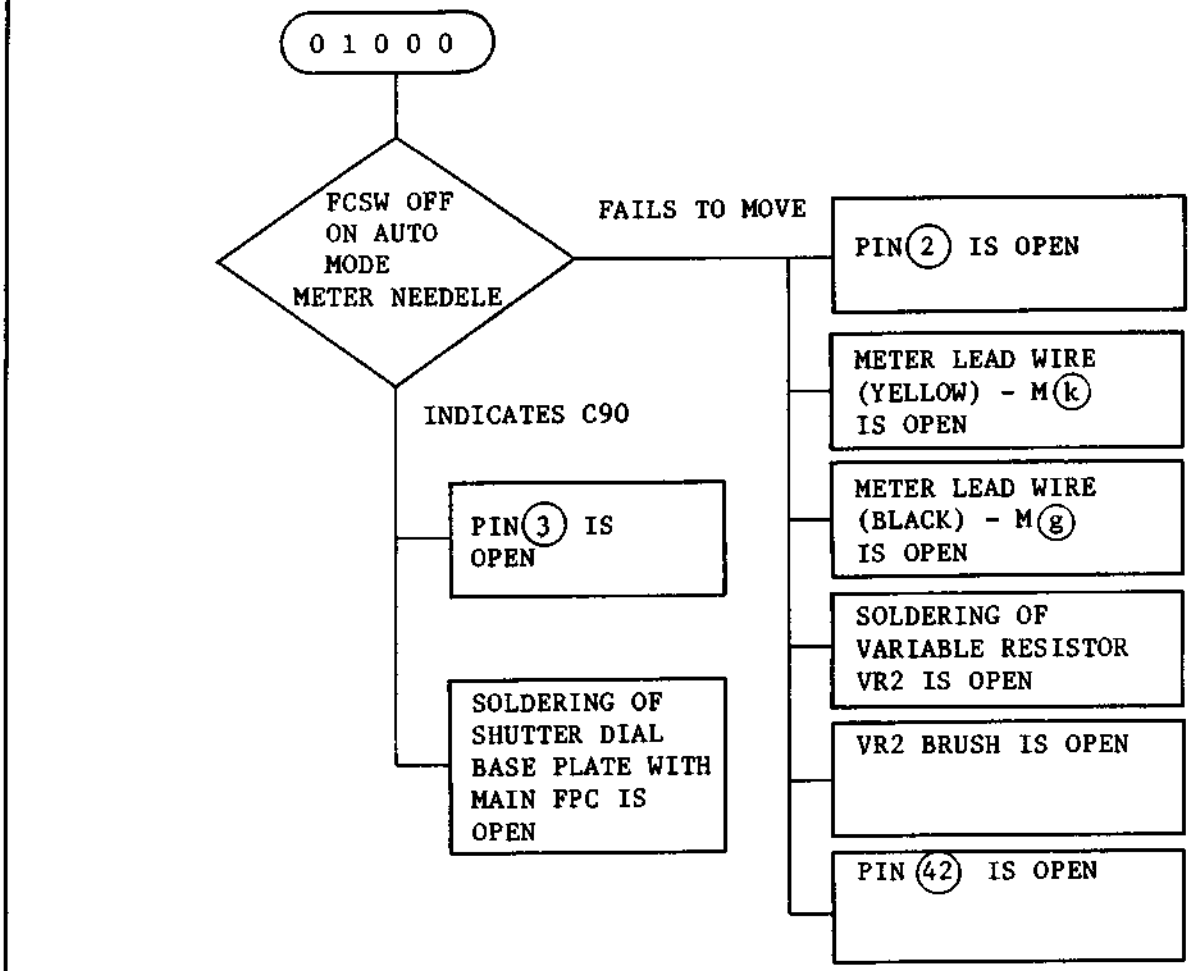

1 0 1 0 1
0 1 1 0 1
0 1 1 0 1

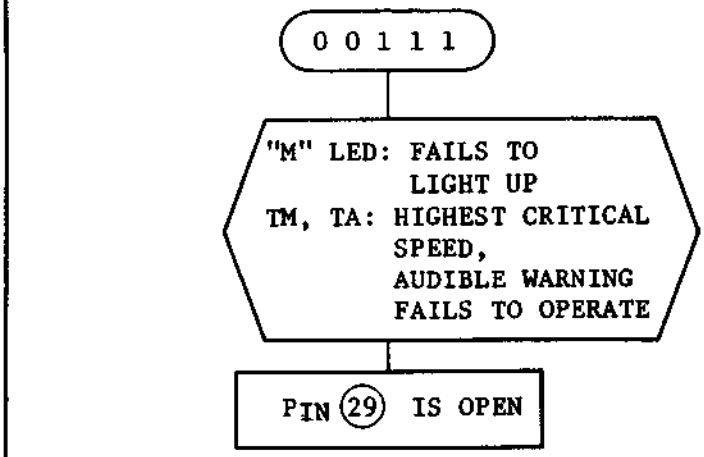

0 1 0 1 1
AFTER FILM-ADVANCING IM
15mA
1 1 0 1 1
4mA
METER NEEDLE: MOVES ONLY WHEN FCSW IS OFF ON AUTO MODE
TM, TA: HIGHEST CRITICAL SPEED
M 12 IS OPEN

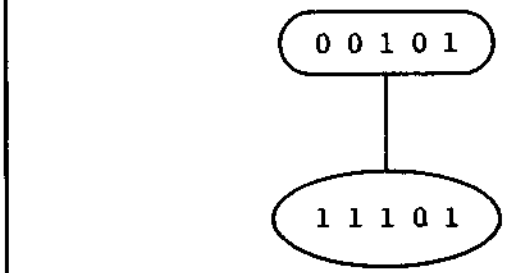

0 1 0 1 0
1 1 0 1 0

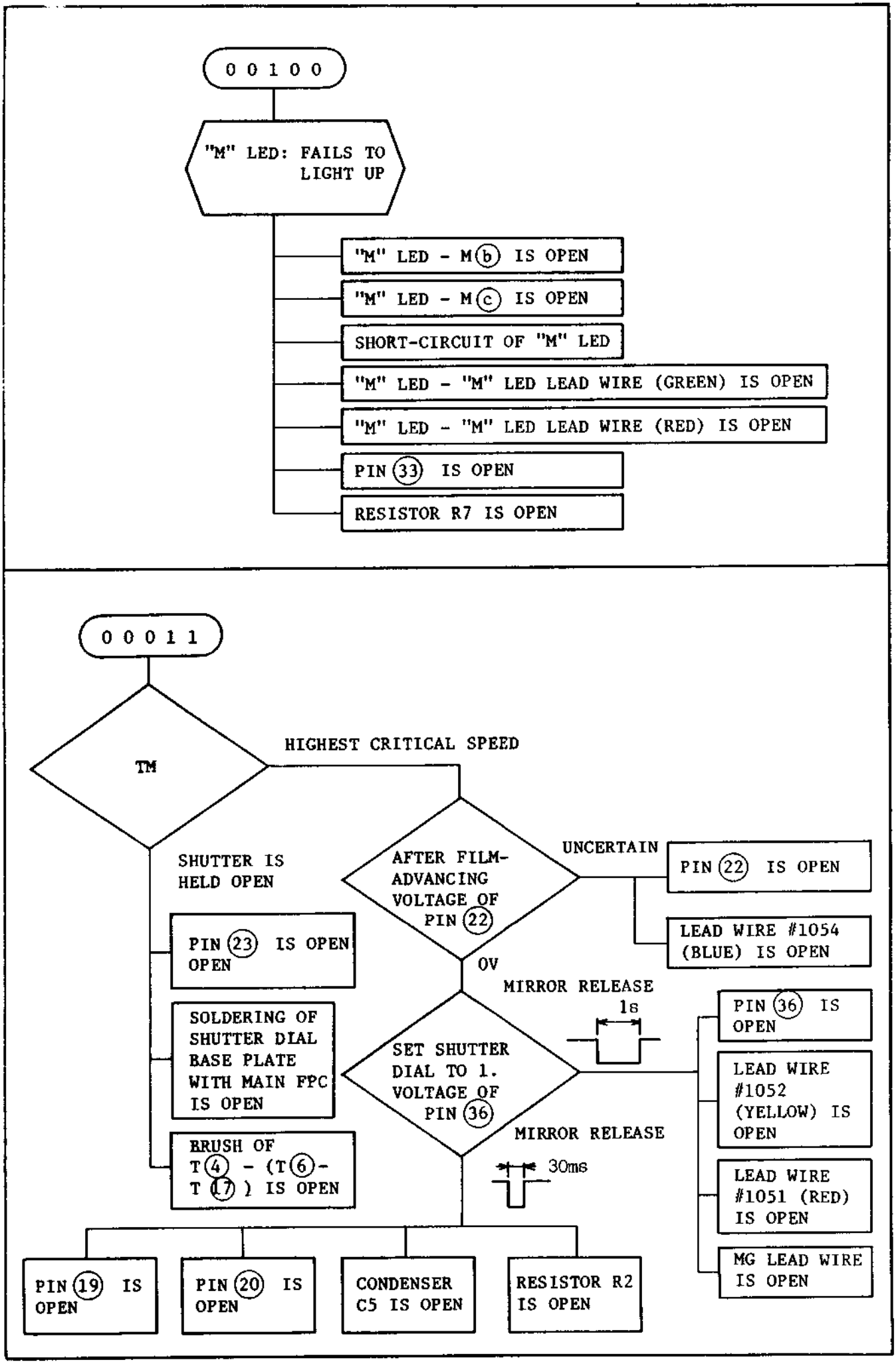

0 1 0 0 1
METER NEEDLE
MOVES UP TO THE LIMIT
TA: HIGHEST CRITICAL SPEED
INDICATES 1/30
0.12V
VOLTAGE OF PIN 7
0V
LEAD WIRE #1066 (PINK) IS OPEN
LEAD WIRE #1067 (PURPLE) IS OPEN
f-fo BRUSH IS OPEN
ASA BRUSH IS OPEN
LEAD WIRE #1049 (YELLOW) IS OPEN
UNSTABLE
M(3) IS OPEN
M(9) IS OPEN
VOLTAGE OF PIN 10
0.4 - 0.5V
PIN (11) IS OPEN
PIN (12) IS OPEN
M(6) IS OPEN
M(7) IS OPEN
2.2V
PIN (14) IS OPEN
LEAD WIRE #1043 (BROWN) IS OPEN
1

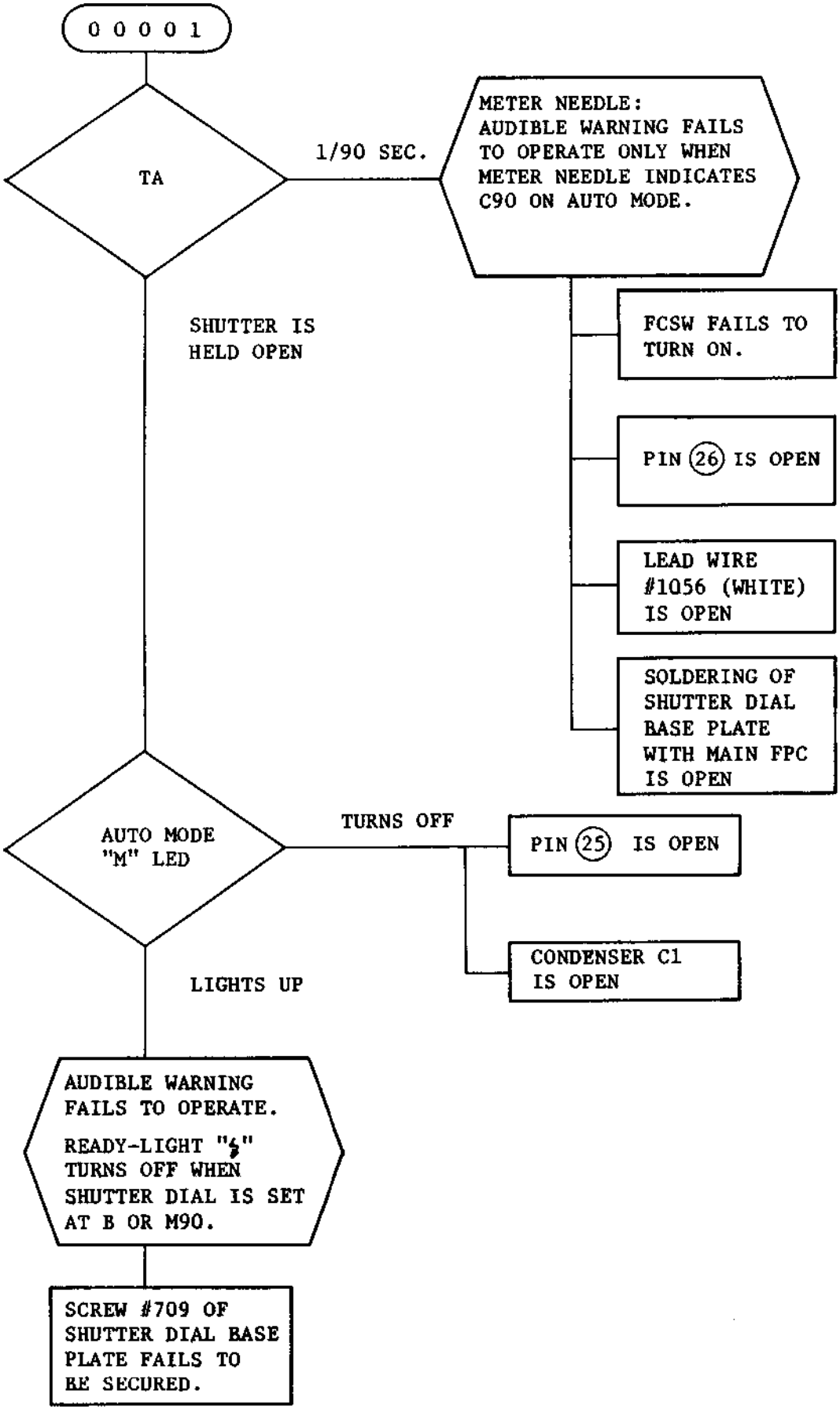

1
VOLTAGE OF PIN 14
0.5V
0V
SETTING: LV4, F22 METER NEEDLE
FAILS TO MOVE
PIN 9 IS OPEN
PIN 10 IS OPEN
POOR SOLDERING OF SPD
MOVES UP TO THE LIMIT
TA: HIGHEST CRITICAL SPEED
PIN 7 IS OPEN
PIN 6 IS OPEN
M 4 IS OPEN
M 10 IS OPEN
LEAD WIRE #1062 (BROWN) IS OPEN
LEAD WIRE #1064 (ORANGE) IS OPEN
20 SEC. POWER HOLD
OPERATES NORMALLY
PIN 13 IS OPEN
LEAD WIRE #1042 (GREEN) IS OPEN
M 5 IS OPEN
INSTANT HOLD
M 13 IS OPEN


0 1 0 0 0
FCSW OFF
ON AUTO
MODE
METER NEEDELE
FAILS TO MOVE
PIN (2) IS OPEN
METER LEAD WIRE (YELLOW) - M (k) IS OPEN
METER LEAD WIRE (BLACK) - M (g) IS OPEN
SOLDERING OF VARIABLE RESISTOR VR2 IS OPEN
VR2 BRUSH IS OPEN
PIN (42) IS OPEN
INDICATES C90
PIN (3) IS OPEN
SOLDERING OF SHUTTER DIAL BASE PLATE WITH MAIN FPC IS OPEN


0 0 1 1 1
"M" LED: FAILS TO LIGHT UP
TM, TA: HIGHEST CRITICAL SPEED, AUDIBLE WARNING FAILS TO OPERATE
PIN (29) IS OPEN


0 0 1 0 1
1 1 1 0 1

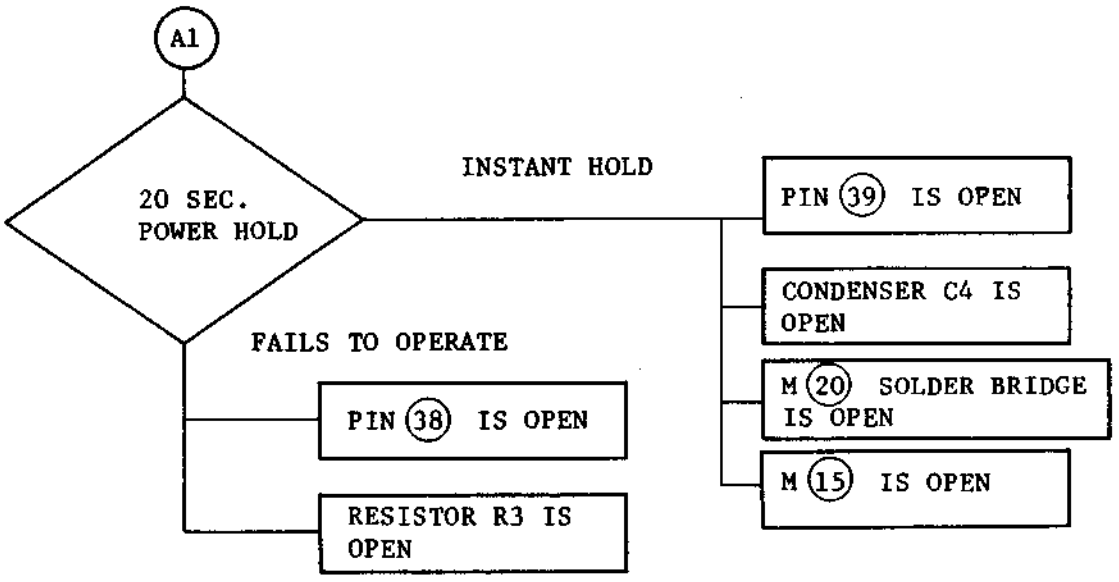

00100
"M" LED: FAILS TO LIGHT UP
"M" LED - M(b) IS OPEN
"M" LED - M(c) IS OPEN
SHORT-CIRCUIT OF "M" LED
"M" LED - "M" LED LEAD WIRE (GREEN) IS OPEN
"M" LED - "M" LED LEAD WIRE (RED) IS OPEN
PIN (33) IS OPEN
RESISTOR R7 IS OPEN
00011
TM
HIGHEST CRITICAL SPEED
SHUTTER IS HELD OPEN
AFTER FILM-ADVANCING VOLTAGE OF PIN (22)
UNCERTAIN
PIN (22) IS OPEN
LEAD WIRE #1054 (BLUE) IS OPEN
PIN (23) IS OPEN OPEN
OV
MIRROR RELEASE
1s
SOLDERING OF SHUTTER DIAL BASE PLATE WITH MAIN FPC IS OPEN
SET SHUTTER DIAL TO 1. VOLTAGE OF PIN (36)
PIN (36) IS OPEN
LEAD WIRE #1052 (YELLOW) IS OPEN
BRUSH OF T(4) - (T(6)-T(7)) IS OPEN
MIRROR RELEASE
30ms
LEAD WIRE #1051 (RED) IS OPEN
MG LEAD WIRE IS OPEN
PIN (19) IS OPEN
PIN (20) IS OPEN
CONDENSER C5 IS OPEN
RESISTOR R2 IS OPEN

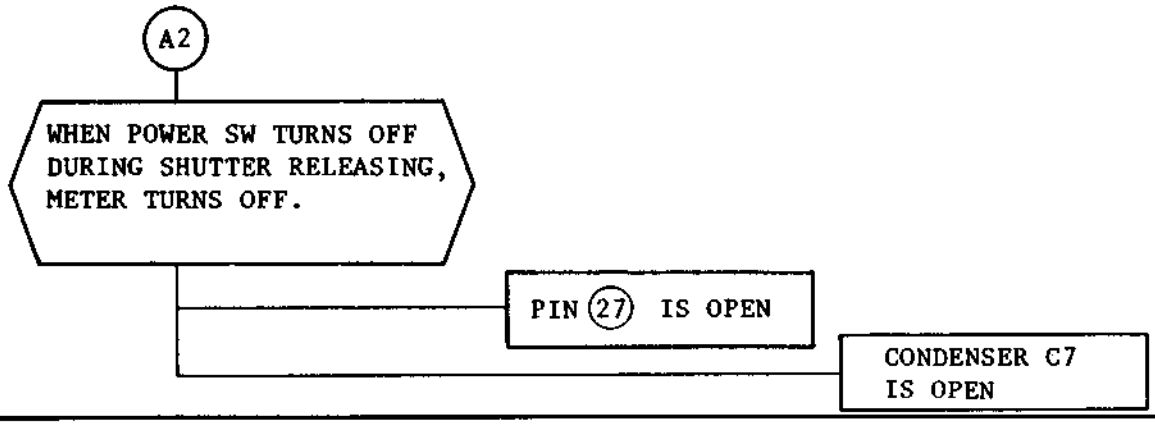

0 0 0 0 1
TA
1/90 SEC.
METER NEEDLE:
AUDIBLE WARNING FAILS
TO OPERATE ONLY WHEN
METER NEEDLE INDICATES
C90 ON AUTO MODE.
SHUTTER IS
HELD OPEN
FCSW FAILS TO
TURN ON.
PIN (26) IS OPEN
LEAD WIRE
#1056 (WHITE)
IS OPEN
SOLDERING OF
SHUTTER DIAL
BASE PLATE
WITH MAIN FPC
IS OPEN
AUTO MODE
"M" LED
TURNS OFF
PIN (25) IS OPEN
CONDENSER C1
IS OPEN
LIGHTS UP
AUDIBLE WARNING
FAILS TO OPERATE.
READY-LIGHT "ϟ"
TURNS OFF WHEN
SHUTTER DIAL IS SET
AT B OR M90.
SCREW #709 OF
SHUTTER DIAL BASE
PLATE FAILS TO
BE SECURED.

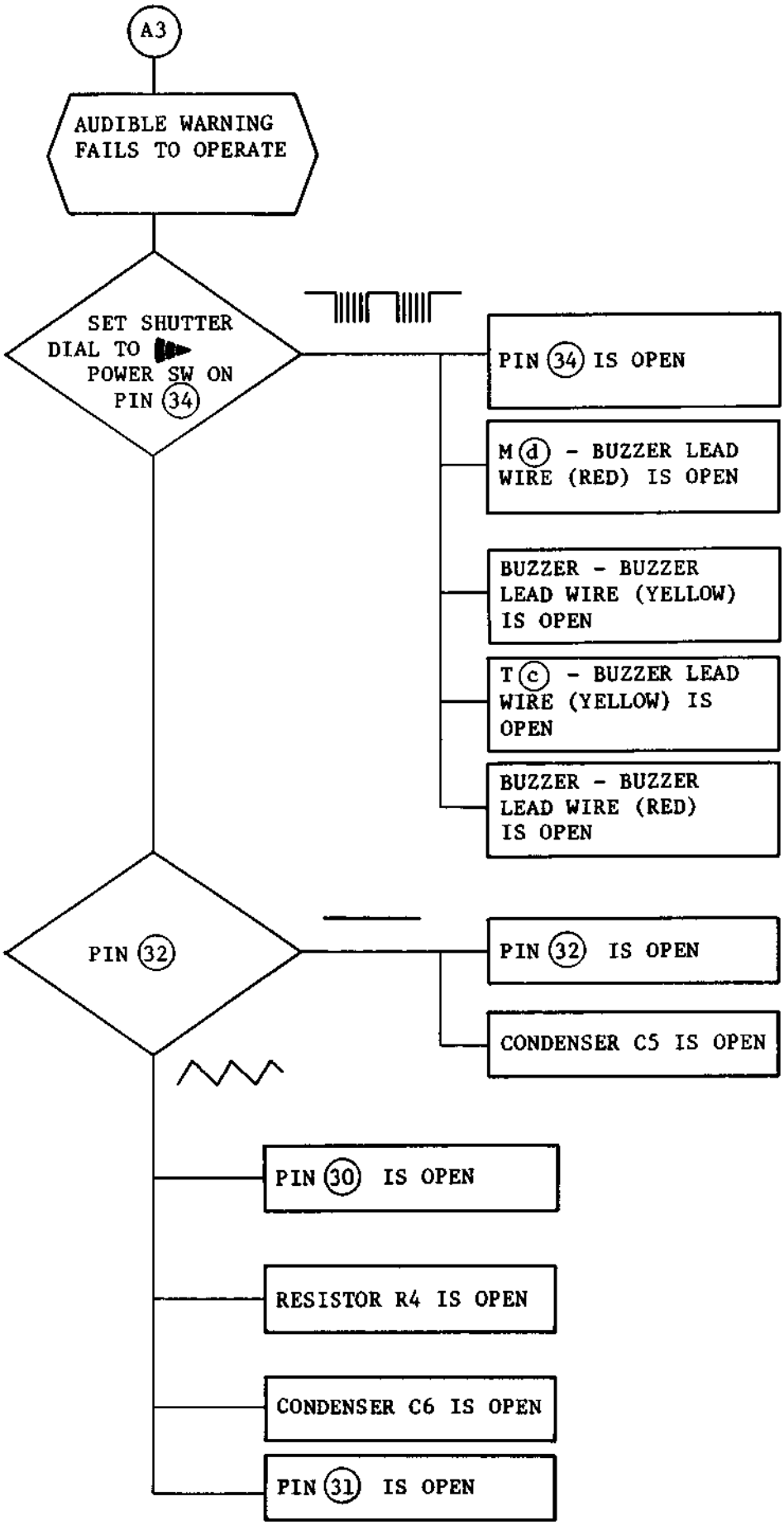
00000

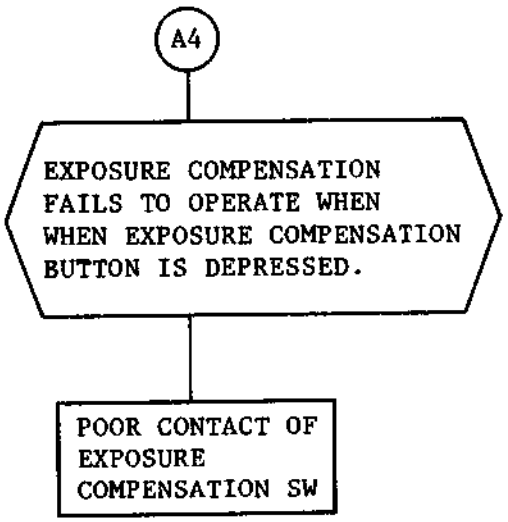
Item	Faulty section	Start code
Camera body	Battery check	A1
	Meter	A2
	Audible warning	A3
	Exposure compensation sw	A4
	Shutter speeds delivery	A5
Speedlight	Ready-light LED "ϟ"	B1
	Sync speed	B2
	Flash output	B3
Motor drive		C

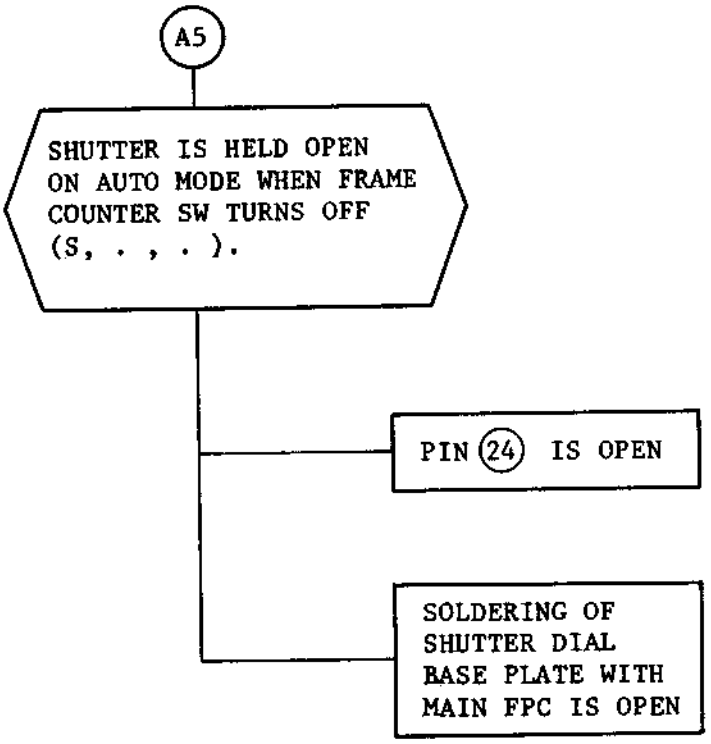
A1 - C

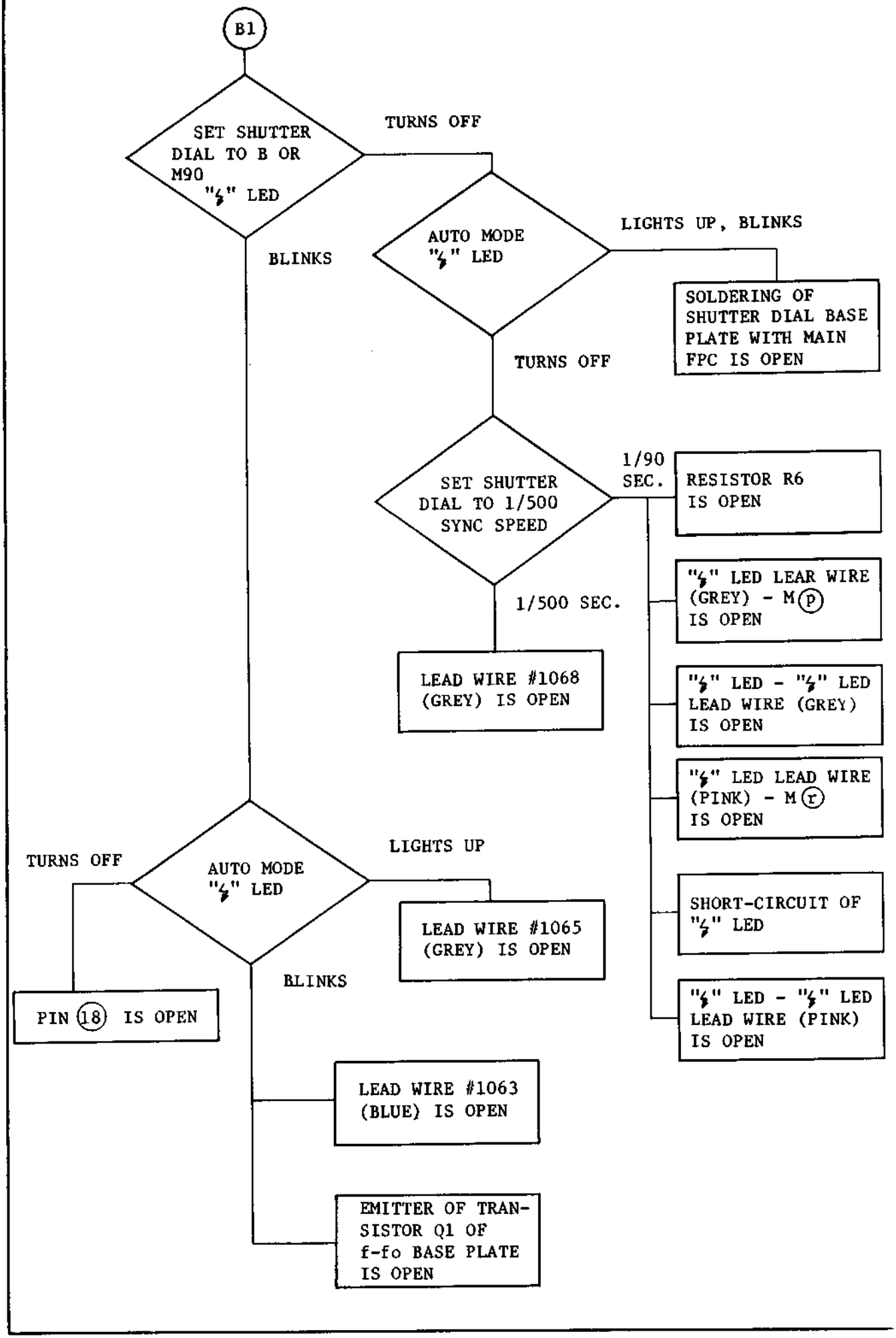


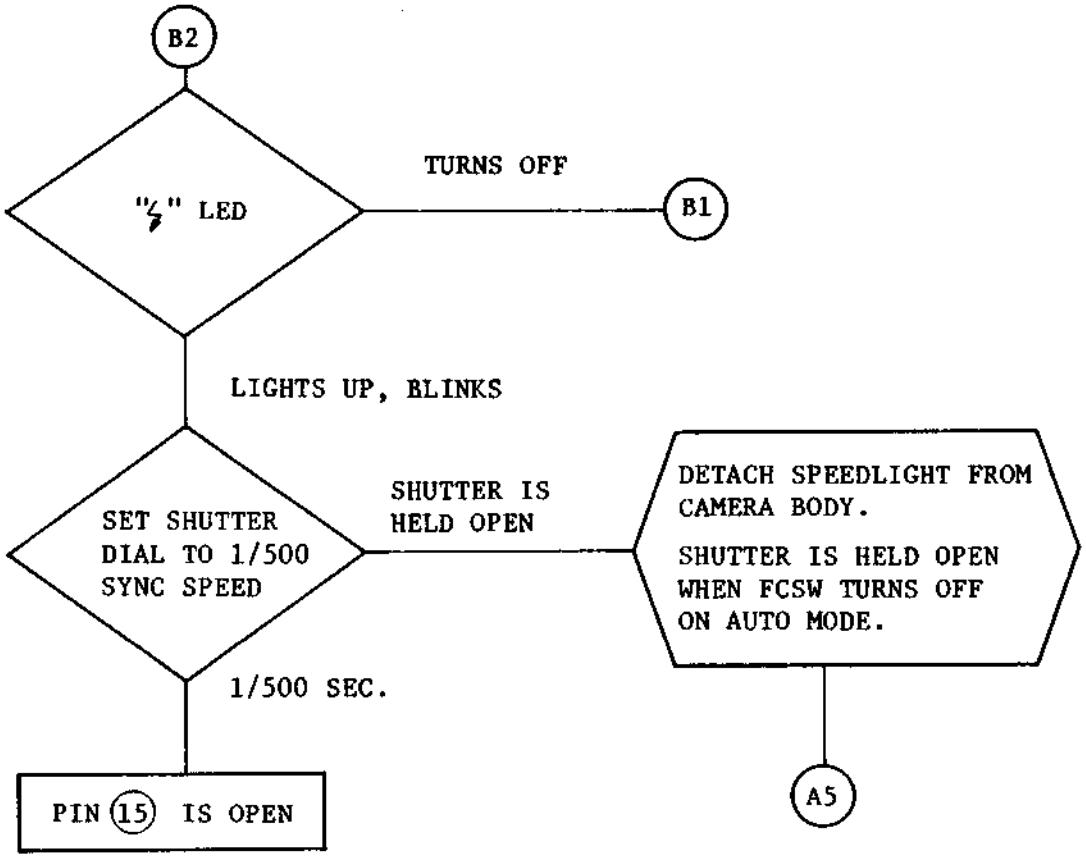


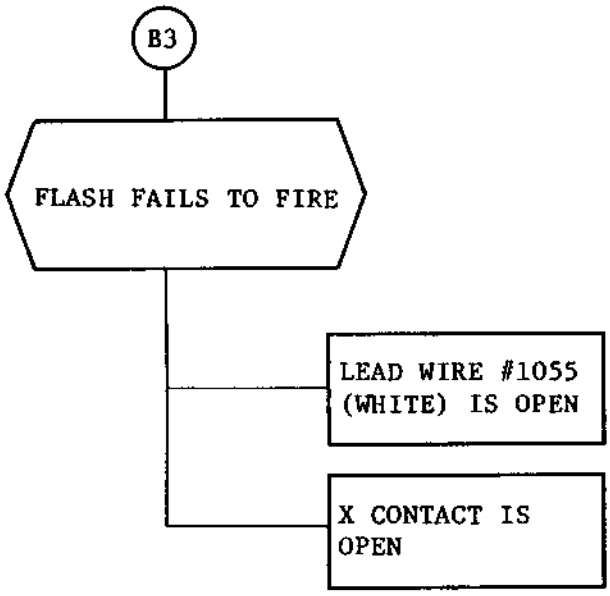

A3
AUDIBLE WARNING FAILS TO OPERATE
SET SHUTTER DIAL TO POWER SW ON
PIN 34
PIN 34 IS OPEN
M d - BUZZER LEAD WIRE (RED) IS OPEN
BUZZER - BUZZER LEAD WIRE (YELLOW) IS OPEN
T c - BUZZER LEAD WIRE (YELLOW) IS OPEN
BUZZER - BUZZER LEAD WIRE (RED) IS OPEN
PIN 32
PIN 32 IS OPEN
CONDENSER C5 IS OPEN
PIN 30 IS OPEN
RESISTOR R4 IS OPEN
CONDENSER C6 IS OPEN
PIN 31 IS OPEN

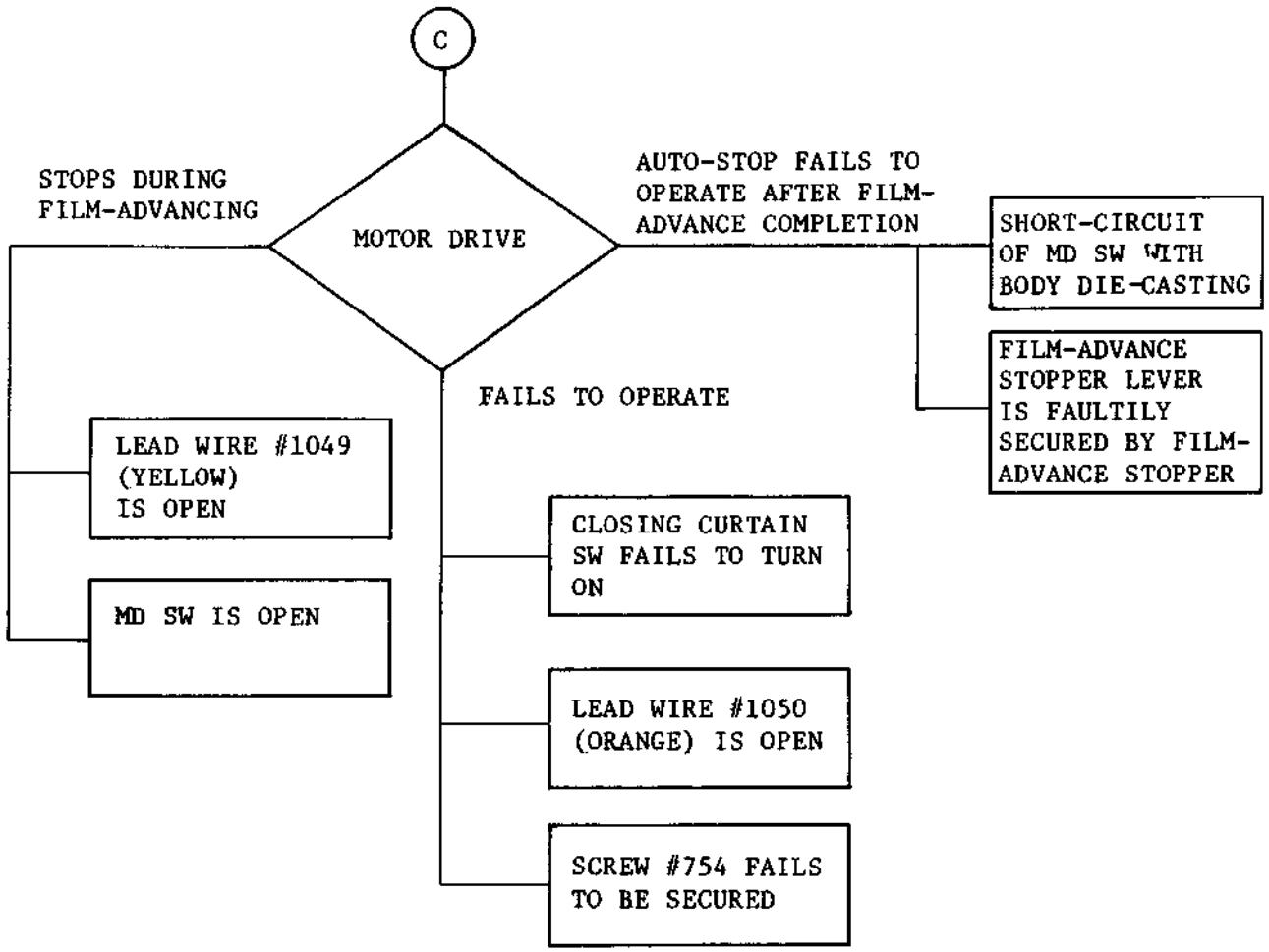

A4
EXPOSURE COMPENSATION FAILS TO OPERATE WHEN WHEN EXPOSURE COMPENSATION BUTTON IS DEPRESSED.
POOR CONTACT OF EXPOSURE COMPENSATION SW


A5
SHUTTER IS HELD OPEN ON AUTO MODE WHEN FRAME COUNTER SW TURNS OFF (S, . , .).
PIN (24) IS OPEN
SOLDERING OF SHUTTER DIAL BASE PLATE WITH MAIN FPC IS OPEN


B1
SET SHUTTER DIAL TO B OR M90
"ϟ" LED
TURNS OFF
BLINKS
AUTO MODE "ϟ" LED
LIGHTS UP, BLINKS
SOLDERING OF SHUTTER DIAL BASE PLATE WITH MAIN FPC IS OPEN
TURNS OFF
SET SHUTTER DIAL TO 1/500 SYNC SPEED
1/90 SEC.
RESISTOR R6 IS OPEN
"ϟ" LED LEAR WIRE (GREY) - M(P) IS OPEN
"ϟ" LED - "ϟ" LED LEAD WIRE (GREY) IS OPEN
"ϟ" LED LEAD WIRE (PINK) - M(r) IS OPEN
SHORT-CIRCUIT OF "ϟ" LED
"ϟ" LED - "ϟ" LED LEAD WIRE (PINK) IS OPEN
1/500 SEC.
LEAD WIRE #1068 (GREY) IS OPEN
TURNS OFF
AUTO MODE "ϟ" LED
LIGHTS UP
LEAD WIRE #1065 (GREY) IS OPEN
BLINKS
PIN (18) IS OPEN
LEAD WIRE #1063 (BLUE) IS OPEN
EMITTER OF TRANSISTOR Q1 OF f-fo BASE PLATE IS OPEN


B2
"⚡" LED
TURNS OFF
B1
LIGHTS UP, BLINKS
SET SHUTTER DIAL TO 1/500 SYNC SPEED
SHUTTER IS HELD OPEN
DETACH SPEEDLIGHT FROM CAMERA BODY.
SHUTTER IS HELD OPEN WHEN FCSW TURNS OFF ON AUTO MODE.
1/500 SEC.
PIN (15) IS OPEN
A5


B3
FLASH FAILS TO FIRE
LEAD WIRE #1055 (WHITE) IS OPEN
X CONTACT IS OPEN


C
MOTOR DRIVE
STOPS DURING FILM-ADVANCING
AUTO-STOP FAILS TO OPERATE AFTER FILM-ADVANCE COMPLETION
FAILS TO OPERATE
LEAD WIRE #1049 (YELLOW) IS OPEN
MD SW IS OPEN
SHORT-CIRCUIT OF MD SW WITH BODY DIE-CASTING
FILM-ADVANCE STOPPER LEVER IS FAULTILY SECURED BY FILM-ADVANCE STOPPER
CLOSING CURTAIN SW FAILS TO TURN ON
LEAD WIRE #1050 (ORANGE) IS OPEN
SCREW #754 FAILS TO BE SECURED

INSPECTION STANDARDS FOR REPAIR & TOOLS

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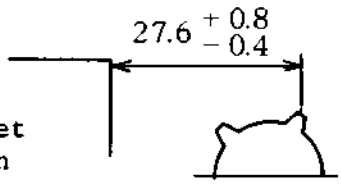
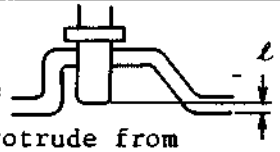
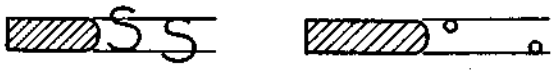
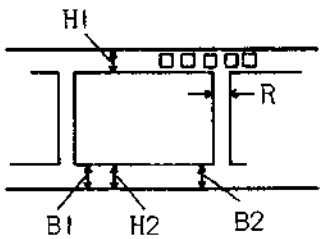
[2]	TOOLS	R5

[1] INSPECTION STANDARDS FOR REPAIR

	Item	Standard	Tool
VIEWFINDER	Infinity focus	±30 (K Type focusing screen)	J18001 J19001
	Diopter	-1±0.5 dpt. inside split-image	
	Image inclination	1° or less	
	Viewfinder coverage	92^{+3}_{-1}%	
	Center-waitted pattern	φ12 40% or more	
MIRROR BOX	Mirror return point	2±1mm from the mirror sponge	
	Aperture lever height	Shutter charged: 3.1+0.1mm Shutter released: 3.4 - 3.9mm Full stroke: 6.6mm or more Tension: 90 - 120g	J18004
FILM-ADVANCE MECHANISM	Film-advance lever angle	144°	
	Film-advance torque	2kg·cm or less (film unloaded) 3.2kg·cm or less (film loaded)	
	Spool	Slipping load: 130 - 240g	J5019
	Sprocket	 Play of tips of sprocket teeth: One tooth length or less	
SHUTTER RELEASE BUTTON	Stroke	Height: 1mm or more Power sw ON: 0.7mm or less Release: -0.2 - -0.6mm	Slide caliper
	Tension	a) Power sw ON: 50 - 200g b) Release: 250 - 400g c) Difference between a) and b): 100 - 300g	J5019
REWIND BUTTON		Set position: $l=2.3^{+0.4}_{-0.3}$mm  Full stroke: l=2.8mm or more Original position: Not to protrude from the bottom cover	Slide caliper
FRAME COUNTER	Counter scale alignment		
	Frame counter sw	To be on when counter reaches to the position between S2 and 1 on Auto mode	

	Frame counter sw	Meter needle should indicate C90 before frame counter sw turns on on Auto mode	
MD FILM ADVANCE	Motor drive coupling	Winding angle: 360°	
	MD coupling torque	1.2kg·cm or less (film unloaded)	
	MD sw	To be off at the film-advance completion	
SELF-TIMER	Delay action time	7 - 15 sec.	
	Tension	Set: 500g·cm or less Cancel: 1kg·cm or less	
FILM RAILS	Flange focal distance	46.67±0.02mm Prallelness: 0.02mm or less Balance of height between internal and external film rails: 0.23±0.02mm Balance of height between internal film rails and aperture plate: 0.2mm or more	J18001-1 J19604
B.L. BUTTON	Exposure compensation sw ON position	+0.2 - -0.4mm from the collar of button	Slide caliper
	Tension	150 - 400g	
SYNCHRONIZATION	Time-lug	0.3 - 1ms	
	Contact efficiency	60% or more (gate time: 1ms, 1/90 sec.) 65% or more (gate time: 25ms, 1/30 sec.)	
	Insulation resistance	30MΩ or more (500V)	
LED	"M" LED	To be lighting during metering on M mode	
	Ready-light "⚡" LED	To light up when fully charged To blink when a improper f/stop is set (the SB-E only)	
PICTURE FRAME	Frame-to-frame space	R=2±1mm	50mm F1.8
	Variation of vertical/horizontal positions of frames	Vertically: H1-H2=0.4mm or less Horizontally: B1-B2=0.1mm or less	
	Picture frame size	$24^{+0.4}_{-0}$ x $36^{+0.4}_{-0}$	
SHUTTER SPEEDS ACCURACY	Exposure unevenness	1/125 - 1: 0.2EV or less 1/250 - 1/1000: 0.6EV or less	J18072 J19036 J19040
	Variation	1/125 - 1: 0.3EV 1/250 - 1/1000: 0.45EV	
	Shutter speeds delivery via self-timer on Auto mode	LV15, F4, ASA 100 0.25EV or less	
	Difference between two adjacent settings	1/125 - 1: 1±0.45EV 1/250 - 1/1000: 1±0.65EV	



SHUTTER SPEEDS ACCURACY

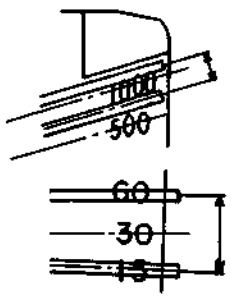
Exposure time on Manual mode

Shutter speed	Standard (ms)	Tolerance	
M90	11.1	10.0 - 152	-0.15 - +0.45EV
1	1000	1275 - 785	±0.35EV
2	500	637 - 392	
4	250	319 - 196	
8	125	159 - 98.1	
15	62.5	79.7 - 49.1	
30	31.25	39.8 - 24.5	
60	15.63	19.9 - 12.3	
125	7.81	9.95 - 6.12	
250	3.91	5.63 - 2.72	±0.525EV
500	1.95	2.81 - 1.36	
1000	0.98	1.41 - 0.68	

Exposure time on Auto mode

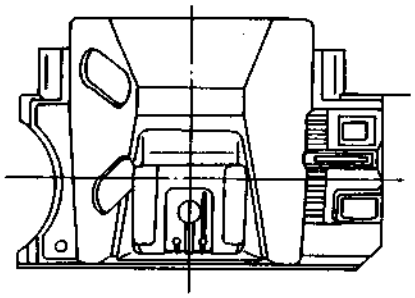
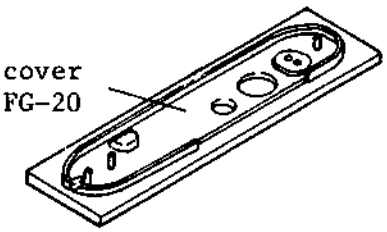
Shutter speed	Standard (ms)	Tolerance	
A90	11.1	10.0 - 16.3	-0.15 - +0.55EV
1	1000	1275 - 637	+0.35 - -0.65EV
2	500	637 - 318	
4	250	319 - 159	
8	125	159 - 79.7	
15	62.5	79.7 - 39.8	
30	31.25	39.8 - 19.9	
60	15.63	19.9 - 9.95	
125	7.81	9.95 - 4.98	
250	3.91	4.98 - 2.49	
500	1.95	2.49 - 1.24	
1000	0.98	1.48 - 0.52	+0.6 - 0.9EV

AUDIBLE WARNING

Item	Standard	Tool
Warning range	Buzzer should sound when meter needle positons within a range bellow. 	J18072 J19036 J19040

	Item	Standard	Tool
OTHERS	Power hold	$22.5^{+12.5}_{-7.5}$ sec. (battery voltage: more than 2.5V) 0 sec. (battery voltage: 2.38 - 2.5V)	
	Battery consumption	Metering Auto mode: 4mA or less Manual mode: 5mA or less Shutter releasing: 15mA	
	Exposure compensation	2±0.4TV (ASA 25 - ASA 3200) Meter: 2±1EV	J18072 J19036 J19040
	Potential of S2 (contact for the SB-19 or SB-E) contact	1314±3mV (ASA 100, F5.6) 1421±15mV (ASA 100, F2)	J18073

[2] TOOLS

Tool No.	Name	Illustration	Class
J15236	Tool top cover		A
J15163	Positioning tool for B418	Replace the bottom cover of Positioning tool J15163 for the EM with that of the FG-20 when using. 	

PARTS LIST

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[1] PARTS NUMBER REFERENCE TABLE P1

[2] PARTS LIST P4

[3] ASEEMBLY LIST P20

部品対照表 Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number
G1	1G551－005
G2	1G950－002－2
G3	1G415－003－5
22	1K080－027
27	1K680－344－1
31	1K080－028
101	1K400－078
104	1K100－035
105	1K080－005
106	1K115－852
107	1K115－746
108	1K607－002
110	1K680－375
113	1K610－258
119	1K115－281－1
120	1K115－282－1
121	1K115－283
122	1K115－284－3
135	1K206－025
137	1K120－165
138	1K083－037
139	1K480－014
140	1K314－165
150	1K600－149
154	1K314－103－2
159	1K115－286－2
178	1K610－384－1
179	1K240－345
181	1K240－118－2
182	1K406－013
183	1K082－006

補助番号 Auxiliary Number	部品番号 Part Number
184	1K115－288－1
185	1K115－747
215	1K680－374
220	1K115－748
222	1K130－191
229	1K225－083－1
247	1K314－174
248	1K230－120
249	1K640－409
250	1K314－175
251	1K230－121
259	1K120－166
282	1K314－179
296	1K230－123－1
313	1K130－192
331	1K362－033
332	1K220－132
333	1K115－203
340	1K230－125－1
350	1K404－033－1
351	1K240－303
355	1K680－349
356	1K680－350
357	1K230－127
358	1K130－193－1
359	1K240－293
365	1K680－352
368	1K680－353
370	1K600－140
371	1K233－034
372	1K115－846
373	1K233－017
376	1K576－055－1
377	1K115－752
388	1K115－791
403	1K640－410

補助番号 Auxiliary Number	部品番号 Part Number
406	1K130－088－2
407	1K130－089
408	1K370－630－1
410	1K130－090
411	1K123－044
412	1K370－324
413	1K050－170
414	1K050－063
415	1K340－037
416	1K220－054
419	1K120－077
421	1K225－054
429	1K480－016
431	1K230－068－1
433	1K120－078
434	1K370－325
439	1K240－095
447	T1－01000SX
465	1K275－006
466	1K275－007
470	1K630－105
500	1K260－045
512	1K640－442
521	1K300－037－2
526	1K130－091－1
528	1K314－183
529	1K206－026
530	1K136－009
531	1K206－027
532	1K245－009－3
533	1K640－245
534	1K208－040
535	1K370－632
542	1K201－042－1
547	1K150－049
562	1K470－037

部品対照表 Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number
601	1K630-216
607	1K083-042
608	1K146-075
609	1K050-173
610	1K480-015
616	1K130-194
618	1K680-358
619	1K208-041
622	1K233-035
624	1K240-330
628	1K240-300-1
629	1K370-686
630	1K630-237
703	K2-14030FB
704	K2-17060FB
705	A1-17045FR
707	A1-17025FC
709	1K120-173
710	1K120-174
711	A2-17025FB
712	1K120-084
713	A1-17030FA
714	A1-17030FS
717	1K120-179
722	1K146-035
723	1K146-066
724	B1-17040FB
725	1K120-003
727	H1-17028FB
728	H1-17022FB
729	A1-17035FC
732	A1-20028FB
733	A1-20035FB
734	A1-20045FB
735	A2-20035FC
736	B1-20020FB

補助番号 Auxiliary Number	部品番号 Part Number
737	B1-20030FB
738	B2-20030FR
739	B1-20035FB
741	A1-20025FB
745	P3-16060SX
747	1K123-046
748	1K146-067
749	G1-17020FB
750	A2-20025FB
751	B1-17025FB
754	A1-20035FA
756	A1-17030FB
759	1K050-029
759	1K050-030
759	1K050-031
759	1K050-032
759	1K050-033
759	1K050-034
759	1K050-035
759	1K050-036
759	1K050-037
759	1K050-038
759	1K050-039
759	1K050-040
759	1K050-041
759	1K050-042
759	1K050-043
759	1K050-044
759	1K050-045
759	1K050-046
759	1K050-047
759	1K050-048
760	1K050-177
770	1K060-031
772	S1-01500SX
773	S1-01200SX
774	1K060-032

補助番号 Auxiliary Number	部品番号 Part Number
1008	1S700-070
1015	1S542-002-1
1051	1S810-418
1052	1S810-419
1053	1S810-420
1054	1S810-421-1

部品対照表 Parts Number Reference Table

補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number	補助番号 Auxiliary Number	部品番号 Part Number
B023	1B990-006	B404	1B340-004		
B024	1B670-043	B405	1B314-111-1		
B025	1B670-041	B417	1B060-189		
B026	1B990-002-2	B418	1B060-037		
B99	1B001-121	B424	1B001-485		
B100	1B060-173	B428	1B990-003		
B102	1B001-085	B443	1B001-478		
B111	1B060-186-2	B464	1B001-136-3		
B112	1B467-007-2	B469	1B260-021		
B150	1B001-146-1	B522	1B314-110		
B180	1B001 479	B531	1B206-022-1		
B201	1B001 488-3				
B265	1B001 481-2	B548	1B990-007		
B276	1B314 107	B561	1B001-484		
B281	1B001-482	B601	1B001-489		
B290	1B110 261-1	B603	1B201-022		
B331	1B990 004	B607	1B990-008		
B338	1B610-020-1	B620	1B001-486-1		
B352	1B208-013	B625	1B200-004		
B361	1B640-023-1	B637	1B001-477		
B362	1B260-022				
B364	1B001-487				
B374	1B001-522				
B378	1B001-483	B1001	1S007-044-2		
B379	1B060-188	B1005	1S007-047		
B381	1B100-260	B1006	1S007-048		
		B2541	1B990-001-1		

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
＊ 1K050-029	759	座金（t = 0.05） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-030	759	座金（t = 0.06） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-031	759	座金（t = 0.07） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-032	759	座金（t = 0.08） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-033	759	座金（t = 0.09） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-034	759	座金（t = 0.1） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-035	759	座金（t = 0.11） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-036	759	座金（t = 0.12） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-037	759	座金（t = 0.2） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-038	759	座金（t = 0.3） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-039	759	座金（t = 0.4） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-040	759	座金（t = 0.5） Washer	0 ～4	1B990-002-2	10	○△	F G
＊ 1K050-041	759	座金（t = 0.6） Washer	0 ～4	1B990-002-2	10	○△	F G

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
＊ 1K050－042	759	座 金（t＝0.7） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－043	759	座 金（t＝0.8） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－044	759	座 金（t＝0.9） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－045	759	座 金（t＝1） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－046	759	座 金（t＝1.1） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－047	759	座 金（t＝1.2） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－048	759	座 金（t＝0.03） Washer	0 ～4	1B990－002－2	10	○△	F G
＊ 1K050－063	414	座 金 Washer	1		1	○	F G
1K050－170	413	座 金 Washer	1		1	○	
1K050－173	609	座 金 Washer	1		4	○	
1K050－177	760	座 金 Washer	1	1B990－002－2	8	○△	
1K060－031	770	ASAダイヤルSリング S－ring	1		4	○	
1K060－032	774	Tブラシギア Gリング G－ring	1		5	○	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
＊ 1K080-005	105	三角環保護カバー Neck-strap ring cover	2		3	○	FG
1K080-027	22	エプロン Apron	1	1B990-002-2	9	○△	
1K080-028	31	銘板 Name plate	1	1B990-006	11	○△	
1K082-006	183	ナンバープレート Number plate	1	1B670-041	12	○△	
1K083-037	138	セルフタイマー銘板 Self-timer index plate	1	1B990-002-2	10	○△	
1K083-042	607	巻戻しノブ Rewind knob	1	1B990-008	4	○△	
＊ 1K100-035	104	三角環 Triangular ring	2		3	○	FG
＊ 1K115-203	333	レンズ着脱ボタン飾 Lens release button	1	1B208-013 1B990-002-2	9	○△	FG
＊(1K115-281) 1K115-281-1	119	ボディ下モルト Sponge pad, body	1		13	○	FG
＊(1K115-282) 1K115-282-1	120	ボディ上モルトA Sponge pad, body	1		13	○	FG
＊ 1K115-283	121	ボディ上モルトB Sponge pad	1		13	○	FG
＊ 1K115-284-3	122	接眼下モルト Light-shield sponge	1		3	○	FG
＊(1K115-286-1) 1K115-286-2	159	裏蓋モルト Light-shield sponge	1	1B670-041	12	○△	FG

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
＊ 1K115-288-1	184	裏蓋遮光紙 Light baffle	1	1B670-041	12	○△	FG
1K115-746	107	巻上側擬革 Leatherette	1		13	○	
1K115-747	185	シュー絶縁シート Insulating sheet	1	1B990-006	11	○△	
1K115-748	220	UPバネモルト UP spring sponge	1	1B990-002-2 1B001-488-3	7	○△	
1K115-752	377	視野枠モルト Finder field frame sponge	1	1B990-002-2 1B001-483	10	○△	
1K115-791	388	黒テープ Tape	4	1B990-002-2	3, 6 8, 10	○△	
1K115-846	372	ミラーストッパーモルト Mirror stopper sponge	1	1B990-002-2 1B001-522	9	○△	
1K115-852	106	ボディ擬革 Leatherette	1		13	○	
＊ 1K120-003	725	ストッパービス Stopper screw	1	1B990-002-2 1B001-488-3	7	○△	FG
＊ 1K120-077	419	カップリングビス Coupling screw	1		1	○	FG
＊ 1K120-078	433	カウンタービス Frame counter shaft screw	1	1B990-001-1	5	○△	FG
＊ 1K120-084	712	シュー座ビス Hot-shoe screw	4	1B990-006	11	○△	FG
1K120-165	137	セルフビス Self-timer screw	1	1B990-002-2	10	○△	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1K120-166	259	レリーズ軸ビス Release shaft screw	1	1B990-002-2 1B001-488-3	7	○△	
1K120-173	709	Tプリント板ビスB Screw, printed circuit	1		5	○	
1K120-174	710	T基板ビス Screw, printed circuit	1		5	○	
1K123-044	411	スプロクラッチビス Sproket screw	1		1	○	FG
＊ 1K123-046	747	Bマウントビス Bayonet set screw	4	1B990-002-2	9	○△	FG
＊(1K130-088) 1K130-088-2	406	カムチャージレバー軸 Charge transmission lever	1		2	○	FG
＊ 1K130-089	407	チャージ中間レバー軸 Mirror charge lever shaft	1		2	○	FG
＊ 1K130-090	410	レシプロレバービス Shutter charge lever shaft	1		2	○	FG
＊(1K130-091) 1K130-091-1	526	スライドレバービス Screw, release lever	2		3	○	FG
1K130-191	222	ミラーSWビス Screw, mirror switch	1	1B990-002-2	7	○△	
1K130-192	313	ダウンバネ軸 Mirror-down spring axle	1	1B990-002-2	6	○△	23 FB #358
1K130-193-1	358	fo レバー軸 fo lever axle	1	1B990-002-2	6	○△	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1K130-194	616	B.L スイッチレバー軸 Axle, exposure compensation switch lever	1		4	○	
＊ 1K136-009	530	指当て軸 Screw, film- advance lever knob	2	1B206-022-1	5	○△	FG
1K146-075	608	ノブ取付ビス Rewind knob switch	1	1B990-008	4	○△	FG
＊ 1K146-035	722	カウンターSWビス Screw, counter switch	1	1B990-001-1	5	○△	FE2
1K146-066	723	半押SWビス Screw, release button switch	1		3	○	
1K146-067	748	位相SWビス Screw, MD switch	1		2	○	
1K150-049	547	Tダイアル止めナット Nut, shutter dial	1		5	○	
1K201-042-1	542	Tダイアル Shutter dial	1		5	○	
1K206-025	135	セルフレバー Self-timer lever	1	1B990-002-2	10	○△	
1K206-026	529	レバー指当 Knob, film advance lever	1	1B206-022-1	5	○△	
1K206-027	531	巻上レバー Film advance lever	1	1B206-022-1	5	○△	
1K208-040	534	レリーズ釦 Release button	1		5		

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	返光区分 Term of Delivery	備考 Remarks
1K208-041	619	B. L 釦 Exposure compensation button	1		4	○	
＊ 1K220-054	416	R釦バネ Sprocket spring	1		1	○	F G
1K220-132	332	着脱バネ Lens release button spring	1	1B990-002-2	8	○△	
＊ 1K225-054	421	スライドレバーバネ Release lever spring	1		3	○	F G
1K225-083-1	229	ミラーアップバネ Mirror-up spring	1	1B990-002-2 1B001-488-3	7	○△	
＊(1K230-068) 1K230-068-1	431	カウンター戻しバネ Frame counter screw	1	1B990-001-1	5	○△	F G
1K230-120	248	連続カギバネ Continuous hook spring	1	1B990-002-2 1B001-488-3	7	○△	23F B #372
1K230-121	251	レリーズカギバネ Start hook spring	1	1B990-002-2 1B001-488-3	7	○△	23F B #309
1K230-123-2	296	チリトリバネ Spring, mirror holder	1	1B990-002-2	8	○△	
1K230-125-1	340	ダウンバネ Mirror-down spring	1	1B990-002-2	6	○△	23F B #332
1K230-127	357	f o バネ fo spring	1	1B990-002-2	6	○△	
＊ 1K233-017	373	ペンタ押えバネB Prism retaining spring B	1		10	○	F G
1K233-034	371	ペンタ押えバネA Prism retaining spring A	1		10	○	

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1K233－035	622	巻戻クリックバネ Rewind Click spring	1	1B001－489	4	○△	
＊ 1K240－095	439	R釦保持バネ Rewind button retaining spring	1		1	○	FG
＊ (1K240－118－1) 1K240－118－2	181	シューバネ Hot shoe spring	1	1B990－006	11	○△	FG
1K240－293	359	fo ブラシ fo contact	1	1B990－002－2 1B001－487	6	○△	
1K240－300－1	628	巻戻ノブバネ Rewind knob spring	1		4	○	
1K240－303	351	マウントバネ Bayonet spring	1	1B990－002－2	9	○△	23FB ＃208
1K240－330	624	巻戻レバーバネ Rewind lever spring	1	1B990－008	4	○△	
1K240－345	179	SPD押え SPD holder	1		10	○	
＊(1K245－009) 1K245－009－3	532	指当クリックバネ Click spring, film advance lever knob	1	1B206－022－1	5	○△	FG
＊ 1K260－045	500	カウンターギア Frame counter gear	1	1B990－001－1	5	○△	FG
＊ 1K275－006	465	スプール Spool	1		1	○	23FB ＃506
＊ 1K275－007	466	スプロケット Sprocket	1		1	○	FG
＊(1K300－037) 1K300－037－2	521	巻上カム Film advance cam	1		1	○	FG

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
＊(1K314－103) 1K314－103－2	154	止め爪 Latch, camera back	1		13	○	FG
1K314－165	140	セルフ板 Self-timer lever plate	1	1B990－002－2	10	○△	
1K314－174	247	連続カギ Continuous release hook	1	1B001－488－3 1B990－002－2	7	○△	
1K314－175	250	レリーズカギ Mirror start hook	1	1B001－482 1B990－002－2	7	○△	23 FB #307
1K314－179	282	レリーズレバー See-saw lever	1		8	○△	23 FB #498
1K314－183	528	チャージ中間レバー Charge lever	1		2	○	
1K340－037	415	カムチャージレバーカラー Cam charge lever collar	1	1B314－111－1		○△	
1K362－033	331	着脱ピン Lens release pin	1	1B990－002－2 1B990－004	8	○△	23FB #212
＊ 1K370－324	412	R 釦 Rewind button	1		1	○	FG
1K370－325	434	カウンター軸 Counter axle	1			○	
1K370－630－1	408	巻上カムローラ軸 Shaft, film-advance cam roller	1	1B314－111－1	2	○△	
1K370－532	535	レリーズ中間ピン Release pin	1		5	○	
1K370－686－1	629	巻戻軸股 Rewind shaft	1		4	○	
＊ 1K400－078	101	三脚ネジ Tripod screw	1		2	○	FG
＊(1K404－033) 1K404－033－1	350	マウント Bayonet ring	1	1B990－002－2	9	○△	FG

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
＊ 1K406－013	182	シュー座 Hot shoe	1	1B990－006	11	○△	FG
1K470－037	562	T目盛板 Shutter speed index	1		5	○	
1K480－014	139	セルフ銘板 Self－timer index plate	1		10	○	
1K480－015	610	フィルム位置マーク板 Film position index	1	1B990－006	11	○△	
1K480－016	429	カウンター指標板 Frame－counter index	1	1B990－001－1	5	○△	
1K576－055－1	376	視野枠 Finder field frame	1		10	○	
＊ 1K600－140	370	プリズム押えシート Prism retaining seat	1		10	○	FG
＊ 1K607－002	108	レンプロゴム Shock absorb rubber	1		2	○	FG
＊ 1K610－258	113	電池室カラー Battery earth connector	1		2	○	FG
＊(1K610－384) 1K610－384－1	178	シュー座止め板 Shoe washer	1	1B990－006	11	○△	FG
＊ 1K630－105	470	スプールカラー Spool internal tube	1		1	○	FG
1K630－216	601	巻戻軸 Rewind shaft	1	1B001－489	4	○△	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1K640-409	249	レリーズ軸カラー Release shaft collar	1	1B990-002-2 1B001-488-3	7	○△	
1K640-410	403	巻上カムローラー Film advance cam roller	1	1B314-111-1	2	○△	
1K640-442	512	スプール遮光板 Light-tight washer	1		1	○	
1K680-344-1	27	前板カバー Front plate cover	1	1B990-002-2	9	○△	
1K680-349	355	着脱モールド Lens release button mold	1	1B990-002-2	8	○△	
1K680-350	356	fo 連動片 fo coupling lever	1	1B990-002-2	9	○△	23FB #275-1
1K680-352	365	fo カバー fo lever cover	1	1B990-002-2	9	○△	23FB #274
1K680-353	368	防塵モールド Screen frame spacer	1		10	○	
1K680-358	618	B.L 釦飾環 Exposure compensation button guide	1		4	○	
1K680-374	215	ストッパー Stopper	1	1B990-002-2 1B001-488-3	7	○△	
1K680-375	110	止め爪カバー Cover	1		13	○	

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1S542－002-1	1015	圧電ブザー Buzzer	1		6	○	
1S700－070	1008	MD基板 Printed circuit	1		2	○	
1S810－409	1041	リード線 Lead wire	1	1S007－044－2		△	W－0056RE
1S810－410	1042	リード線 Lead wire	1	1S007－044－2		△	W－0056GN
1S810－411	1043	リード線 Lead wire	1	1S007－044－2		△	W－0056BN
1S810－412	1044	リード線 Lead wire	1	1S007－044－2		△	W－0056BE
1S810－413	1045	リード線 Lead wire	1	1S007－044－2		△	W－0056PU
1S810－414	1047	リード線 Lead wire	1			×	W－0056RE
1S810－415-1	1048	リード線 Lead wire	1	1B060－186－2		△	W－0056BK
1S810－416	1049	リード線 Lead wire	2			×	W－0056YE
1S810－417	1050	リード線 Lead wire	1			×	W－0056OR
1S810－418	1051	リード線 Lead wire（Red）	1		3	○	
1S810－419	1052	リード線 Lead wire（Yeilow）	1		3	○	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1S810-420	1053	リード線 Lead wire (White)	1		3	○	
1S810-421-1	1054	リード線 Lead wire (Blue)	1		3	○	
1S810-422	1055	リード線 Lead wire	1			×	W-0056 WH
1S810-423	1056	リード線 Lead wire	1			×	W-0056 WH
1S810-428-2	1061	リード線 Lead wire	1	1B990-002-2 1B001-481-2		△	W-0056 PU
1S810-429	1062	リード線 Lead wire	1	1B990-002-2 1S007-047		△	W-0056 BN
1S810-430	1063	リード線 Lead wire	1	1B990-002-2 1S007-047		△	W-0056 BE
1S810-431-1	1064	リード線 Lead wire	1	1B990-002-2 1S007-047		△	W-0056 OR
1S810-432	1065	リード線 Lead wire	1	1B990-002-2 1S007-047		△	W-0056 GY
1S810-433	1066	リード線 Lead wire	1	1B990-002-2 1S007-048		△	W-0056 PU
1S810-434	1067	リード線 Lead wire	1	1B990-002-2 1S007-048		△	W-0056 PU
1S810-435	1068	リード線 Lead wire	1			×	W-0056 GY

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
A1－17025 FC	707	小ねじ Screw	4		11	○	
A1－17030 FA	713	小ねじ Screw	2		3	○	
A1－17030 FB	756	小ねじ Screw	2	1B990－002－2	7	○△	
A1－17030 FS	714	小ねじ Screw	1		3	○	
A1－17035 FC	729	小ねじ Screw	3	1B990－002－2	9. 11	○△	
A1－17045 FR	705	小ねじ Screw	2	1B990－002－2	9	○△	
A1－20025 FB	741	小ねじ Screw	2		13	○	
A1－20028 FB	732	小ねじ Screw	5	1B990－002－2	1. 9. 10	○△	
A1－20035 FA	754	小ねじ Screw	1		2	○	
A1－20035 FB	733	小ねじ Screw	5		4. 10	○	
A1－20045 FB	734	小ねじ Screw	4		3. 10	○	
A2－17025 FB	711	小ねじ Screw	2	1B990－002－2	8	○△	
A2－20025 FB	750	小ねじ Screw	1	1B990－002－2	6	○△	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
A2-20035FC	735	小ねじ Screw	3		2	○	
B1-17025FB	751	小ねじ Screw	1	1B990-002-2	6	○△	
B1-17040FB	724	小ねじ Screw	2		10	○	
B1-20020FB	736	小ねじ Screw	2	1B990-002-2	8	○△	
B2-20030FB	737	小ねじ Screw	5		4.5	○	
B1-20035FB	739	小ねじ Screw	4	1B990-002-2	10	○△	
B2-20030FR	738	小ねじ Screw	1		9	○	
G1-17020FB	749	タップタイトねじ Screw	1		10	○	
H1-17022FB	728	タップタイトねじ Screw	1	1B990-002-2 1B001-487	6	○△	
H1-17028FB	727	タップタイトねじ Screw	1		5	○	
K2-14030FB	703	止ねじ Screw	1	1B206-022-1	5	○△	
P3-16060SX	745	スプリングピン Pin	2		3	○	
S1-01200SX	773	止め輪 E-ring	1	1B990-001-1 1B314-111-1	2	○△	
K2-17060FB	704	止めねじ Screw	1			○	

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部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs. per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
S1－01500SX	772	止め輪 E－ring	2	1B990－002－2 1B990－004 1B001－482	8	○△	
T1－01000SX	447	鋼球 Steel ball	17	1B314－111－1 1B340－004	2	○△	
＊ (1G415－003－1) 1G415－003－5	G3	ペンタプリズム Pentagonal prism	1		10	○	FG
＊ 1G551－005	G1	ミラー Mirror	1	1B990－002－2 1B100－261－1	8	○△	FG
＊ (1G950－002－1) 1G950－002－2	G2	フレネルレンズ Fresnel lens	1		9	○	FG

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
★ 1B001-085	B102	吊環 Eyelet	2	1K100-034 1K044-001	3	FA
★ 1B001-121	B99	セルフタイマー Self-timer	1		8	FG
★(1B001-136) 1B001-135-3	B464	スプール軸 Spool shaft	1	1K370-327-1. 1K250-044 1K220-056. 1K600-145 1K600-248×2	1	FG
★ 1B001-146-1	B150	圧板 Pressure plate	1	1K600-149. 1K240-112-1 1K370-192×2	12	FG
1B001-522	B374	スクリーン枠 Screen retaining frarme	1	1K620-041. 1K115-846 1K240-092×2. 1K370-244-1×2	9	
1B001-477	B637	ASAブラシ板 ASA brush	1	1K640-413 1K240-301	4	
1B001-478	B443	位相スイッチ MD switch	1	1K680-377. 1K500-144 1K240-097. 1K240-096	2	
1B001-479-1	B180	シューモールド Shoe mount mold	1	1K680-347. 1K370-620-1 1K370-621×2	11	
1B001-481-3	B265	ミラースイッチ Mirror switch	1	1K680-348. 1K115-751 1K240-291. 1K240-292 1S810-428-2	7	
1B001-482	B281	連続レリーズレバー Release lever	1	1K610-503. 1K370-627 1K370-628. 1K314-177 1K630-212. 1K230-122 1K050-163. 1K314-179 S1-01500SX. 1K314-176 1K370-626. 1K630-211 1K314-178.	8	

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B001-483	B378	視野枠 Focusing screen frame	1	1K620-092 1K115-752	1	
1B001-484-1	B561	Tブラシギヤ Brush gear, shutter dial	1	1K260-134-1 1K240-297 1K240-298	4	
1B001-485	B424	半押スイッチ Release button switch	1	1K680-376. 1K600-142 1K240-099-1. 1K240-098-1	3	
1B001-486-2	B620	B.L接点 Exposure compensation switch contact	1	1K314-185-1 1K240-299-1	4	
1B001-487	B364	fo レバー fo lever	1	1K680-351. 1K240-293 H1-17022FB	6	
1B001-488-4	B201	I基板 Mirror actuating unit	1	1K610-502. 1K048-067 1K314-170. 1K340-070 1K156-033. 1K314-168 1K314-173. 1K050-175 1K230-118. 1K370-622 1K156-036. 1K314-172 1K050-178. 1K370-625-1 1K314-175. 1K314-174 1K640-409. 1K120-166 1K230-120. 1K230-121 1K366-012. 1K680-374 1K120-003. 1K115-750 1K225-083-1 1K314-169. 1K115-748 1K366-041-1 1K314-171-1 1K230-119. 1K370-624 1K314-166. 1K366-016-1 1K370-623. 1K640-238	7.8	

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B001-489	B601	巻戻軸受 Rewind shaft bearing	1	1K630-216. 1K630-237 1K233-035.	4	
※ 1B060-037	B418	モーターカップリング Motor coupling	1	1S700-014 1K340-033	1	23FB A8
1B060-173	B100	シャッター Shutter	1		3	
1B060-186-2	B111	電池ケース Battery chamber	1	1K680-346. 1K240-050-2 1K240-329. 1K048-070 1S810-415-1	3	
1B060-188	B379	プリズムボックス Prism box	1	1K620-093 H1-17040FB	10	
1B060-189	B417	カウンタースイッチ Counter switch	1	1K680-355. 1K240-341 1K600-143. 1K240-342	5	
1B100-260	B381	接眼モールド Eyepiece frame mold	1	1K500-407. 1G138-001-1 1K610-241-1 1G104-018 1G247-017	10	
1B100-261-1	B290	チリトリ Mirror holder	1	1K610-504-1. 1G551-005 1K360-009. 1K115-270	8	
1B200-004	B625	巻戻レバー Rewind lever	1	1K610-256. 1K630-233 1K370-340	4	
1B201-022	B603	ASAダイアル ASA dial	1	1K201-043. 1K640-412 1K275-031. 1K470-038 1K246-010	4	
1B206-022-1	B531	巻上レバー Film-advance lever	1	1K206-027. 1K206-026 1K245-009-3. 1K136-009×2. K2-14030FB	5	
1B208-013	B352	着脱釦 Lens release button	1	1K115-203 1K208-039	9	

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B260-021	B469	スプロ軸 Sprocket shaft	1	1K260-142 1K370-685	9	
1B260-022	B362	連動軸 Aperture coupling ring gear	1	1K260-131 1K230-124	1	
1B314-110	B522	スライドレバー Release lever	1	1K314-181 1K366-049×2	3	
1B314-111-1	B405	チャージレバー Charge lever	1	1K314-096. 1K314-095 1K370-323. 1K370-321 T1-01000SX×9 1K370-630-1 1K640-410 S1-01200SX. 1K340-037	2	
1B340-004	B404	スプール軸受 Spool shaft metal	1	1K640-411. 1K640-196 1K640-202. T1-01000SX×8	1	
*(1B467-007-1) 1B467-007-2	B112	電池キャップ Battery chamber lid	1	1K467-017-2 1K630-082	2	FA
1B610-020-1	B333	チリトリヒンジ板 Mirror holder hinge plate	1	1K610-505 1K366-043-1	6	
1B640-023-1	B361	連動環 Aperture coupling ring	1	1K260-130-1 1K240-294	9	
1B670-041	B025	裏蓋 Camera back	1	1K620-091. 1K680-098-2 1K600-079. 1K240-302 1K370-619. 1K370-580×2 1K115-287. 1K115-286-2 1K115-288-1. 1K082-006	12	
1B670-043-1	B024	底蓋 Bottom cover	1	1K670-037 1K115-847-1	2	
1B314-107	B276	レリーズレバー Release lever	1	1K314-176, 1K370-626 1K630-211, 1K314-178		

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B990-001-1	B2541	巻上基板 Film - advance base unit	1	1B060-189. 1K275-037 1K470-042. 1K610-507 1K630-214-1. 1K640-248-1 1K370-633. 1K314-184 1K370-647. 1K370-333 1K340-074. 1K314-182 1K340-072. 1K260-038 1K600-303. 1K370-646 1K314-189. 1K370-698 1K240-093-2. 1K362-012×3 1K220-139×3. 1K480-016 1K230-068-1. 1K120-078 1K260-132. 1K275-030 1K600-146. 1K260-045 1K233-036 1K640-245. 1K340-073 1K230-070-1. 1K146-035 1K060-009. S1-01200SX	5	
1B990-003	B428	カウンターモールド Frame counter gear	1	1K275-037 1K470-042	5	
1B990-004	B331	着脱ピン Lens release pin	1	1K362-033 S1-01500SX	8	
1B990-006	B2023	上カバー Top cover	1	1K670-036-1. 1K480-015 1K680-359. 1K680-345-1 1K080-028. 1K680-357 1K680-356. 1K220-133 1K240-296. 1K115-747×2 1B001-479. 1K610-384-1 1K240-118-2 1K406-013 1K120-084×4	11	

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B990－002－2	B026	前板 Front plate		1B001－121. 1B001－488－2 1B001－481. 1B001－482 1B100－261. 1B990－004 1B610－020. 1B208－013 1B640－023. 1B260－022 1B001－487. 1B001－155 1B001－483. 1S007－047 1S007－048. 1K080－027 1K670－038－2. 1K680－344 1K206－025. 1K120－165 1K083－037. 1K314－165 1K130－191. 1K230－123 1K130－192. 1K220－132 1K230－125. 1K404－033－1 1K240－303－1. 1K680－349 1K680－350. 1K230－127 1K130－193. 1K680－352 1K115－791 × 2. A1－17045FR × 2 A2－17025FB × 2 A1－17035FC A1－20028FB × 2. B1－20020FB × 2 B1－20035FB × 4 1K123－046 × 4. A2－20025FB. B1－17025FB A1－17030FB × 2 1K050－029. 1K050－030 1K050－031. 1K050－032 1K050－033. 1K050－034 1K050－035. 1K050－036 1K050－037. 1K050－038 1K050－039. 1K050－040 1K050－041. 1K050－042 1K050－043. 1K050－044 1K050－045. 1K050－046 1K050－047. 1K050－048 1S542－002. 1K050－177	6 7 9 10	

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B990-007	B548	T基板 Shutter dial base plate	1	1K260-133. 1K630-215 1K680-371	5	
1B990-008	B607	巻戻ノブ Rewind knob	1	1B200-004. 1K083-042 1K146-023. 1K240-330	4	
1S007-044-3		ICプリント板 Main FPC	1	1S705-036-1. 1S320-014 1S237-040. 1S340-046 1S340-047. 1S340-048 1S340-049 1S340-050 1S335-038. 1S310-047 1S310-048. 1S310-049 1S310-054×2. 1S322-030 1S322-031×2. 1S322-032 1S322-034. 1S250-003 1S810-409. 1S810-410 1S810-411. 1S810-412 1S810-413. 1S340-054 1S322-038. 1S700-068. 1S310-046 1S310-050. 1S310-051 1S310-052. 1K610-509-1	10	
1S007-047-1	B1005	fo 基板 fo base plate	1	1S320-015. 1S120-009 1S310-053. 1S810-429 1S810-430. 1S810-431-1 1S810-432.	6	
1S007-048	B1006	f-fo 基板 f-fo base plate	1	1S322-039. 1S810-433 1S810-434	8	

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	部組品番号 Assembly	参照図番 Figure	販売区分 Term of Delivery	備考 Remarks
1K080-034	22	エプロン (黒) Apron (black)	1	1B990-020		○△	
1K082-007	183	ナンバープレート (黒) Number plate (black)	1	1B670-045		○△	
1K670-050	23	上カバー (黒) Top cover (black)	1	1B670-044		△	
1K670-051	24	底カバー (黒) Bottom cover (black)	1			○	
1K001-007	707	Screw	4			○	
1K001-008	729	Screw	3	1B990-020		○△	
1K001-011	735	Screw	3			○	

※ 他の部品は FAA18001 (白) と同じ

※ THIS LIST CONTAINS SPECIAL PARTS FOR FG-20 BLACK BODY ONLY. REFER OTHER PARTS TO LIST OF FG-20 CHROME BODY (FAA18001).

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分個数 Pcs.per Unit	構成部品番品 Constituent Parts	参照図番 Figure	備考 Remarks
1B670-044	B2023	上カバー (黒) Top cover (black)	1	1K080-028 ,1K115-747 1K220-133 ,1K240-296 1K480-015 ,1K670-050 1K680-345-1,1K680-356 1K680-357 ,1K680-359		
1B670-045	B205	裏 蓋 (黒) Camera back (black)	1	1K082-007 ,1K115-286-2 1K115-288-1,1K115-893 1K115-492 x2 1K240-302 ,1K370-619 1K370-580 x2 1K600-079 ,1K620-091 1K680-432		
1B990-020	B026	前 板 (黒) Front plate (black)	1	1K001-008 ,1K050-029 1K050-030 ,1K050-031 1K050-032 ,1K050-033 1K050-036 ,1K050-037 1K050-038 ,1K050-039 1K050-040 ,1K050-041 1K050-042 ,1K050-043 1K050-044 ,1K050-045-1 1K050-046-1,1K050-047-1 1K050-048 ,1K050-135 1K050-177 ,1K080-034-2 1K083-037 ,1K120-165 1K115-791 x2 1K123-046 x4 1K130-191 ,1K130-192 1K206-025 ,1K220-132 1K230-123-2,1K230-125-1 1K230-127 ,1K240-303 1K314-165 ,1K314-165 1K404-033-1,1K680-344-1 1K680-349 ,1K680-350 1K680-352 ,1S007-047 1S007-048 ,1S542-002-1 A1-17030FBx2 A1-17030FRx2 A1-20028FBx2 A2-17025FBx2 A2-20025FB ,B1-17025FB B1-20020FBx2 B1-20035FBx4 1B001-121 ,1B001-481-3 1B001-482 ,1B001-483 1B001-487 ,1B001-488-4 1B001-522 ,1B001-261-2 1B208-013 ,1B260-022 1B610-020-1,1B640-023-1 1B990-004		

TECHNICAL INFORMATION

Product Name: Nikon FG-20 (FAA18001/FAA18051)

Ref. No. FG-20-840028

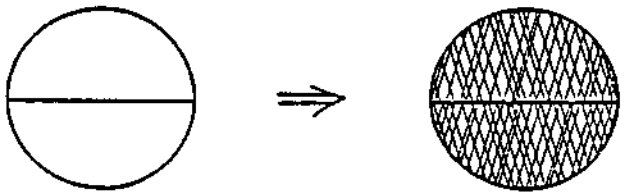
Repair manual:

Date: December 1984

Subject: CHANGE OF FOCUSING SCREEN

RP information list: 8445

It is reported that the K type focusing screen has been changed to facilitate focusing at splitprism when mounting a lens with a small maximum aperture, such as F5.6 or F8.



Concavo-convex type splitprism

Former
(1G950-002-2)

New
(1G950-039)

Identification (with an F5.6 lens mounted)

Former screen: Either of the splitprisms begins to darken and focusing may be difficult.

New screen: The darkness of the splitprism is reduced and focusing is possible at the prism.

For service:

The FG-20's former focusing screen or the FG's focusing screen can be replaced with new one and in such case, the exposure accuracy and infinity focus should be checked after replacement of the focusing screen.
Please note however that the replacement should be conducted on charge basis only when the replacement is strongly requested.

NIPPON KOGAKU K.K.
SERVICE DEPARTMENT
PHOTO PRODUCTS DIVISION
Fuji Bldg., 2-3, 3-chome, Marunouchi, Chiyoda-ku, Tokyo 100 Japan
Tel. (03) 214-5311. Telex: 02222950 (NIKON J) & J22601 (NIKON)